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# In the Supreme Court of the United States

OCTOBER TERM, 1962

—  
No. —

UNITED STATES, PETITIONER

v.

CARLO BIANCHI AND COMPANY, INC.

—  
**PETITION FOR A WRIT OF CERTIORARI TO THE UNITED  
STATES COURT OF CLAIMS**  
—

The Solicitor General, on behalf of the United States, prays that a writ of certiorari issue to review the interlocutory judgment of the Court of Claims entered in this case on January 14, 1959, made final by the judgment of that court entered on May 9, 1962.

**OPINIONS BELOW**

The opinion of the Court of Claims of January 14, 1959 (App. A, *infra*, pp. 15-21) is reported at 144 C. Cls. 500. The opinion of the Court of Claims of May 9, 1962 (App. B, *infra*, pp. 52-53) is not yet reported.

**JURISDICTION**

The final judgment of the Court of Claims was entered on May 9, 1962. A timely petition for-re-

hearing was denied on July 18, 1962. The jurisdiction of this Court is invoked under 28 U.S.C. 1255(1).

#### QUESTION PRESENTED

Whether, where a contractor has specifically agreed, pursuant to a standard clause in government contracts, that the administrative decision on a factual dispute arising out of the contract is to be "final and conclusive" and the Act of May 11, 1954, similarly provides that "such decision shall be final and conclusive unless \* \* \* not supported by substantial evidence," the Court of Claims may upset such a decision without regard to the substantiating evidence before the administrative authority and solely on the basis of evidence presented in a *de novo* trial to that court.

#### STATUTORY AND CONTRACT PROVISIONS INVOLVED

1. The Act of May 11, 1954, 68 Stat. 81. (Wunderlich Statute) (41 U.S.C. 321-322) provides:

§ 321. Limitation on pleading contract-provisions relating to finality; standards of review.

No provision of any contract entered into by the United States, relating to the finality or conclusiveness of any decision of the head of any department or agency or his duly authorized representative or board in a dispute involving a question arising under such contract, shall be pleaded in any suit now filed or to be filed as limiting judicial review of any such decision to cases where fraud by such official or his said representative or board is alleged: *Provided, however,* That any such decision shall



be final and conclusive unless the same is fraudulent or capricious or arbitrary or so grossly erroneous as necessarily to imply bad faith, or is not supported by substantial evidence.

§ 322. Contract-provisions making decisions final on questions of law.

No Government contract shall contain a provision making final on a question of law the decision of any administrative official, representative, or board.

2. The "Disputes" or "Finality-Clause" Article of the contract here involved provides (App., *infra*, pp. 22-23) :

Article 15. *Disputes*.—Except as otherwise specifically provided in this contract, all disputes concerning questions of fact arising under this contract shall be decided by the contracting officer subject to written appeal by the contractor within 30 days to the head of the department concerned or his duly authorized representative, whose decision shall be final and conclusive upon the parties hereto. In the meantime the contractor shall diligently proceed with the work as directed.

#### STATEMENT

This action arises out of respondent's claim for certain unanticipated costs allegedly incurred by it in performance of a Government contract. The Court of Claims' findings disclose the following pertinent facts:

On or about July 3, 1946, the respondent entered into a contract with the United States for the construction of an earthen dam across Canacadea Creek,

Almond, Steuben County, New York (App. 21). The work was to be performed in strict accordance with the specifications, schedules and drawings for an estimated consideration of \$3,330,330. *Ibid.*

The present action concerns a claim by the respondent for additional compensation for unanticipated expenditures allegedly incurred as a result of subsurface conditions which were encountered during operations under the contract and which were alleged to be materially different from those described in the drawing and specifications.<sup>1</sup> On May 5, 1947, the contracting officer formally denied the respondent's claim (App. 35-36).

The respondent appealed under the "Disputes" Article of the contract (*supra*, p. 3) and was accorded a hearing by the Corps of Engineers Claims and Appeals Board (App. 37, 50). At this hearing, the respondent presented its evidence and contentions at length.<sup>2</sup> In a written opinion dated December 9, 1948, the Board denied the claim (App. 51).

This action was then filed by respondent in the court below. The Government's initial defense was that the administrative denial was supported by sub-

<sup>1</sup> Specifically, the assertion is that respondent is entitled to an equitable adjustment for the costs of installing permanent tunnel supports since the weathered and unstable condition of the rock through which the tunnel was blasted was, in its view, an unforeseen condition.

<sup>2</sup> At the hearing before the Board the only witnesses called on behalf of respondent were its general superintendent, a civil engineer, the engineer for the Cabot Construction Company, respondent's subcontractor, and a geologist, although five other prospective witnesses, all of whom testified at the trial before the Court of Claims, were present at the time.

stantial evidence on the record as a whole and that, pursuant to the so-called Wunderlich statute, *supra*, pp. 2-3, the administrative decision was therefore conclusive on the parties (App. 20). The court, however, refused to review the administrative record to determine whether it contained substantial evidence supporting the Board's decision, stating (*ibid*):

In our opinion in *Volentine and Littleton v. United States*, 136 C. Cls. 638, holding that the trial in this court should not be limited to the record made before the contracting agency, but should be *de novo*, we recognized "at the time" were logical weaknesses in our position. We concluded, however, that the intent of Congress in enacting the Wunderlich Act was in accord with our conclusion, and we adhere to that conclusion in this case.<sup>3</sup>

After a *de novo* trial, at which a total of fifteen witnesses testified,<sup>4</sup> the court concluded that the evidence did not support the administrative decision. *Ibid*.

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<sup>3</sup> In *Volentine and Littleton v. United States*, 136 C. Cls. 638, 650, Judge Laramore, dissenting, recognized the logical weakness in the court's position and urged that a "common sense application of the Act \* \* \*, considering the background of the legislation and the administrative procedures available to aggrieved contractors," required that judicial review be confined to the administrative record unless it is demonstrated that because of the procedure employed by the appeals board the contractor was unable to adequately present his case.

<sup>4</sup> As the Government pointed out in the Court of Claims, by presenting only four witnesses before the Claims and Appeal Board respondent deprived that Board of a fair opportunity to decide the case on substantially the same evidence that had been presented in the Court of Claims. \*

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courts, have had occasion to consider the question there raised.\* All of the courts which have passed upon the question, with the exception of the Court of Claims, are of the view that administrative decisions rendered under the Standard Dispute Article of government contracts are to be reviewed on the administrative record and sustained if supported by substantial evidence.† If a plaintiff sues, however, in the Court of Claims, rather than in a district court, he may obtain a trial *de novo*.

\* 28 U.S.C. 1346(a)(2) imposes a \$10,000 ceiling on district court jurisdiction over government contract claims. Accordingly, most government contract litigation is in the Court of Claims. It is highly significant, therefore, that such a widespread conflict has already developed on the precise issue here involved.

† *Allied Paint & Color Works, Inc. v. United States*, No. 27236, C.A. 2, decided August 29, 1962; *Wells & Wells, Inc. v. United States*, 269 F. 2d 412 (C.A. 8); *Lowell O. West Lumber Sales v. United States*, 270 F. 2d 12 (C.A. 9); *United States v. McKinnon*, 289 F. 2d 908 (C.A. 9); *Hoffmann v. United States*, 276 F. 2d 199 (C.A. 10); *Langoma Lumber Corp. v. United States*, 140 F. Supp. 460 (E.D. Pa.), affirmed, 232 F. 2d 886 (C.A. 3); *Mann Chemical Laboratories, Inc. v. United States*, 174 F. Supp. 363 (D. Mass.); *L. W. Foster Sportswear Co. v. United States* 145 F. Supp. 448 (E.D. Pa.); *United States National Bank of Portland v. United States*, 178 F. Supp. 910 (D. Ore.); *United States v. Hamden Co-operative Creamery Co.*, 185 F. Supp. 341 (E.D. N.Y.), affirmed, 297 F. 2d 130 (C.A. 2); *M. Berger Company v. United States*, 199 F. Supp. 22 (W.D. Pa.). But cf. *Blake Construction Company, Inc. v. United States*, 296 F. 2d 393 (C.A. D.C.), holding that a determination which was outside "agency expertise" (whether there were grounds for reformation of a contract) should be made by the district court. The *Blake* decision distinguished this type of determination from issues as to excessiveness of profits and performance in conformity with contract specifications.

The most recent pronouncement on the issue is found in *Allied Paint & Color Works, Inc. v. United States*, No. 27236, C.A. 2, August 29, 1962 (not yet reported), App. C, *infra*, pp. 84-86. Noting that appellant had not been precluded from introducing before the administrative tribunal whatever evidence it wished to present, the Second Circuit approved the district court's refusal to take additional testimony in deciding the issues before it and affirmed its action in confining review to the administrative record. In the course of its opinion, the Court of Appeals, advertent to the conflict in decisions, said (App. C, *infra*, pp. 83-84):

The law is quite unsettled whether a district court reviewing the administrative ruling of one of the contract disputes boards should grant a trial *de novo* and take testimony, or whether it should limit its review to the record made before the administrative board. The Court of Claims has generally held that a trial *de novo* should be granted. *Volentine and Littleton v. United States*, 145 F. Supp. 952 (Ct. Cl. 1956). *Fehlhaber Corp. v. United States*, 151 F. Supp. 817 (Ct. Cl.), *cert. denied*, 355 U.S. 877 (1957). The district courts and the courts of appeals, on the other hand, have tended to restrict court review to a review of the administrative record. *United States v. McKinnon*, *supra*; *Lowell O. West Lumber Sales v. United States*, 270 F. 2d 12 (9th Cir. 1959); *Mann Chemical Labs., Inc. v. United States*, 174 F. Supp. 563 (D. Mass. 1958); *L. W. Foster Sportswear, Inc.*, 145 F. Supp. 148 (E.D. Pa. 1956); *United States Nat'l Bank v. United States*, 178 F. Supp. 910

(D. Ore. 1959). *But see Blake Constr. Co. v. United States, supra.* \* \* \*

The Ninth Circuit has also held that faithful adherence to the congressional purpose underlying the Wunderlich Act and respect for the integrity of contractual provisions providing for a final and conclusive administrative determination of factual disputes require that the district court be bound by the facts revealed in the administrative record if supported by substantial evidence. *Lowell O. West Lumber Sales v. United States*, 270 F. 2d 12 (C.A. 9); see, also, *McKinnon v. United States*, 178 F. Supp. 913 (D. Ore.), reversed on other grounds, 289 F. 2d 908 (C.A. 9). Similarly, the Court of Appeals for the Tenth Circuit has held that the administrative decision is final unless, in terms of the Wunderlich statute, it is "not supported by substantial evidence." *Hoffmann v. United States*, 276 F. 2d 199, 200 (C.A. 10). These decisions make it clear that on factual disputes there is no *de novo* review in the district courts.\*

2. Eight years ago, Congress, in the "Wunderlich statute," defined the scope of judicial review of administrative determinations of factual disputes

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\* This result is also suggested by *Wells & Wells, Inc. v. United States*, 269 F. 2d 412 (C.A. 8). Although the Court of Appeals there held that appellant-contractor was not in a position to urge on appeal for the first time that the district court erred in not trying the case *de novo*, the opinion makes it plain that, for the purpose of the substantial evidence test in the Wunderlich statute, the reviewing court is limited to the record and evidence before the administrative board or agency. 269 F. 2d at 415. See, also, *Lañoma Lumber Corp. v. United States*, 140 F. Supp. 460 (E.D. Pa.), affirmed, 232 F. 2d 886 (C.A. 3).



under the "finality" clause of standard form government contracts. Act of May 11, 1954, *supra*, pp. 2-3. In prescribing limited judicial review, the pertinent language unequivocally declares that the administrative decision "shall be final and conclusive unless \* \* \* not supported by substantial evidence." \* The reference to "substantial evidence" would certainly appear to point to the evidence developed in the record before the administrative agency. Any other conclusion does violence to the evident purpose that weight be given to a decision made with the specialized knowledge of the government officials designated by the contracting parties.

We shall not attempt in this petition a full exposition of the legislative history. We point out, however, that various bills were submitted to Congress,<sup>10</sup> and that Congress failed to adopt measures which would have provided for more expansive review.<sup>11</sup>

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\* The statute also denies conclusive effect to any administrative determination which is "fraudulent or capricious or arbitrary or so grossly erroneous as necessarily to imply bad faith \* \* \*." See *supra*, p. 3. These exceptions are not involved here.

<sup>10</sup> S. 2432 and 2487, 82d Cong., 2d Sess.; H.R. 6214, 6301, and 6338, 82d Cong., 2d Sess.; S. 24, 83d Cong., 1st Sess.; H.R. 1839 and 3634, 83d Cong., 1st Sess.; H.R. 6946, 83d Cong., 2d Sess.

<sup>11</sup> There is no doubt that Congress passed the Wunderlich statute in order to make certain that judicial review of an administrative decision under the disputes clause would not be limited to the sole ground of fraud but would also be available where the contractor establishes "arbitrariness and capriciousness." H. Rep. 1380, 83rd Cong., 2d Sess., p. 4. In this respect, Congress can be said simply to have codified the view, many times reiterated by this Court prior to its decision in *United States v. Wunderlich*, 342 U.S. 98, that the administrative



One of the proposals which failed to obtain approval pointedly omitted all reference to the "substantial evidence" rule and provided for a *de novo* trial. See Hearings before a Subcommittee of the Senate Judiciary Committee on S. 2487, 82d Cong., 2d Sess., Feb. 15, 1952, pp. 33-35. We note also that the pertinent committee reports reflect a clear Congressional understanding that the parties would present all of their evidence before the administrative agency. Thus, in reporting the Wunderlich bill out favorably, the House Judiciary Committee Report explained—

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resolution of a factual question under the disputes clause must be sustained unless it is capricious or so grossly erroneous as to necessarily imply bad faith, or fraud. See, e.g., *Kihlberg v. United States*, 97 U.S. 398, 401, 402; *United States v. Gleason*, 175 U.S. 588, 602, 609; *Ripley v. United States*, 222 U.S. 144, 148; *United States v. Moorman*, 338 U.S. 457, 461. But these pre-Wunderlich decisions in no way justify the type of extraordinary *de novo* review undertaken by the court below in its decision in the present case and in *Valentine and Littleton v. United States*, 145 F. Supp. 852; *Fehlhaber v. United States*, 138 C. Cls. 571, certiorari denied, 355 U.S. 877; and *H. L. Yoh Company v. United States*, C. Cls. No. 435-455, decided April 7, 1961.

It has been brought to light in public hearings that it is the exception rather than the rule that contractors in the presentation of their disputes ~~been brought to light in public hearings that it is the exception rather than the rule that contractors in the presentation of their disputes~~ are afforded an opportunity to become acquainted with the evidence in support of the Government's position. *It is believed that if the standard of substantial evidence is adopted this condition will be corrected and that the records of hearing officers will hereafter contain all of the testimony and evidence upon which they have relied in making their decisions.* It would not be possible to justify the retention of the finality clauses in Government contracts unless the hearing procedures were conducted in such a way as to require each party to present openly its side of the controversy and afforded an opportunity of rebuttal. [Emphasis added.] [H. Rep. 1380, 83d Cong., 2d Sess., pp. 4-5.]

3. The overwhelming majority of formal government construction and procurement contracts contain a "disputes" clause comparable to the one involved here. The Court of Claims is the principal forum in which contract claims against the government are filed. Such suits may also be brought, however, in the

district courts (note 6, *supra*). Certainly, a uniform rule of procedure should apply irrespective of the forum chosen. The administrative boards involved and the parties to the administrative proceeding are entitled to know whether the administrative trial is merely a "trial run" or a proceeding in which the parties are obligated to put in their entire case.

#### CONCLUSION

For the foregoing reasons, it is respectfully submitted that the petition for a writ of certiorari should be granted.

ARCHIBALD COX,  
*Solicitor General.*

JOSEPH D. GUILFOYLE,  
*Acting Assistant Attorney General.*

JOHN G. LAUGHLIN, Jr.,  
HARVEY M. GOLDBERG,  
*Attorneys.*

OCTOBER 1962.

## APPENDIX A

### In the United States Court of Claims

No. 466-54

(Decided January 14, 1959)

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#### CARLO BIANCHI AND COMPANY, INC. v. THE UNITED STATES

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*Mr. Robert W. Knox* for the plaintiff. *Messrs. Robert F. Bradford and William H. Matthews* were on the briefs.

*Mr. Martin E. Rendelman*, with whom was *Mr. Assistant Attorney General George Cochran Doub*, for the defendant.

#### OPINION

MADDEN, *Judge*, delivered the opinion of the court:

The plaintiff claims that in performing a contract with the Corps of Engineers of the War Department, it encountered changed conditions within the scope of Article 4 of its contract which caused it to incur extra expense for which the Government should have paid but did not.

The contract was made in July 1946. The plaintiff was to build an earthen dam across Canacadea Creek at Almond, Steuben County, New York. One item of the work was the blasting through rock of a tunnel some 710 feet long. The blasted area was to be approximately 17 feet in diameter and the finished bore after the construction of the concrete lining was to be 13 feet in diameter. All of the work under the contract was completed on time, the contract completion date, as extended, being June 30, 1949.

The Army Engineers had made test borings in the area through which the tunnel was to be built. The invitation for bids, upon which the plaintiff had acted in submitting its bid, contained the standard provisions requiring the bidder to investigate the site and learn all that could be learned

about the conditions which would be encountered in the performance of the contract. The plaintiff made a thorough examination of the nature of the rock, wherever it was exposed in the area, and of the logs of the test borings made by the Army Engineers. The logs of the borings indicated that, except for a distance of about fifty feet at each end of the tunnel, over which the rock covering would be relatively shallow, the rock through which the tunnel would pass would be "unweathered" rock, i. e. rock without seams in which clay or mud had accumulated. The importance of the unweathered condition of the rock is that such rock would better remain in place in the roof of the tunnel without vertical support when the tunnel was blasted through.

The specifications contemplated instability of the rock for fifty feet at each end of the tunnel. They provided for the insertion in these locations of strong steel ribs set four feet apart, with steel "liner plates" one-eighth of an inch thick on top of them.

The plaintiff's excavation subcontractor, experienced in tunnel work, blasted out the tunnel. A good deal of rock fell from above the required height of the tunnel. The fall from the blasting and the overbreak was "mucked" out by the night crew. No cribbing or other temporary protection against falling rock was used at this stage of the work. The blasting through of the tunnel was begun in December 1946 and finished by March 12, 1947, all in winter weather.

Because of the considerable excess fall of rock while the tunnel was being blasted through, the plaintiff requested the Government's resident engineer to authorize the installation of steel ribs and liner plates through the entire length of the tunnel, this additional material to be paid for by the Government. The resident engineer replied that unless there were indications that the tunnel would cave in, such authority would not be given.

The plaintiff, in correspondence during the next several months, repeated its request, which the Government repeatedly denied. The plaintiff caused the situation to be examined by several experts. They found that, throughout the length of the tunnel, the rock contained seams filled with mud and clay; that these seams were saturated with water and offered little resistance to the fall of the rock when its

vertical support had been removed. Since the tunnel had been blasted through in the winter when no moisture could enter the ground from the surface, which was about 100 feet above the tunnel, the rock was relatively stable at that time. When the ground at the surface thawed and the spring rains came, the saturation of the seams in the rock occurred or was increased, as was the instability of the overlying rock.

In the disputation in the writings of the parties, the Government took the position that all that was needed was "temporary protection" sufficient to enable the workmen to safely clear out the tunnel and construct the concrete lining. If that was all that was needed, it was no more than the plaintiff had contracted to do, at its own expense. Such protection would, apparently, have been wooden cribbing, sufficiently strong to prevent a relatively small volume of rock from crashing to the floor of the tunnel.

The plaintiff's contention was, and is, that the rock above the tunnel was so unstable that unless "permanent protection" was installed, of a kind which would have to remain imbedded in the concrete lining of the tunnel, not only would the workmen be endangered but the tunnel could not be completed because of the danger of large falls of rocks which would make it impossible or impracticable to properly construct the concrete lining.

On May 5, 1947, the contracting officer formally notified the plaintiff that it was his decision that no additional steel tunnel lining would be authorized to be placed at the expense of the Government. The plaintiff, on May 29, filed an appeal from the contracting officer's decision. It also renewed its request to the contracting officer for approval of the steel permanent protection which it proposed to use. On June 13, 1947, the contracting officer advised the plaintiff that it might install the proposed steel protection if it chose to do so, but that the Government thought that the installation was more expensive than was necessary; that nothing more than temporary protection, which the plaintiff was under a duty to furnish, was necessary; and that the Government would not pay the cost of either kind of protection. This letter suggested and recommended to the plaintiff a lighter and less expensive type of protection.

The plaintiff in further correspondence, informed the contracting officer of the advice which it had received from expert consultants that the type of protection recommended by the contracting officer would be inadequate and unsafe. It then proposed a design, of steel protection, with detailed specifications, and requested approval of the design. On August 11, 1947, the contracting officer approved the use of the plaintiff's design, saying, however, that it was unnecessarily strong and expensive and that the Government would not pay for it unless higher authority reversed his decision. The plaintiff then proceeded to install the permanent protection and completed the lining of the tunnel on May 8, 1948.

The Claims and Appeals Board denied the plaintiff's appeal on December 14, 1948.

The evidence does not tell us in detail what the process of constructing the lining of the top of the tunnel would have been, if only temporary protection had been installed, so that there would have been no steel ribs and lining plates to serve as a form for the lining. Presumably, removable wooden forms would have been used and the space above them would have been packed with rocks and concrete and the voids filled with cement grouting. The evidence seems to us to be quite overwhelming that, the condition of instability of the rock above the tunnel being what it was, it would not have been practicable to construct the lining of the tunnel by that method. There would quite certainly have been a large number of heavy rock falls during the several months of the construction of the tunnel lining, and the rearrangement of the fallen rocks and the packing of the voids in such a way that the arch of the tunnel would support the unstable weight above it, when the forms were removed, would have been a difficult if not an impossible task. All the risks of the success of this task would have fallen on the plaintiff, since it had contracted to construct a permanent and usable tunnel.

The plaintiff says, and we have found as a fact, that the weathered and unstable condition of the rock through which the tunnel was blasted was an unforeseen condition. The contract contained the usual Article 4 of Government construction contracts, relating to subsurface or latent unfore-



seen conditions. The Article is quoted in our findings of fact. The unforeseen condition having arisen, the Government was under a contractual duty to pay the plaintiff the cost of solving the difficulty. The contracting officials were adamant in their position that "temporary protection" would solve the problem. It is possible that it would have, but the evidence to the contrary was so strong that it would have been foolhardy of the plaintiff to proceed on the Government's advice, but at the plaintiff's own risk.

We get from the record the impression that the Government officials, in their correspondence with the plaintiff in the spring and summer of 1947, kept their minds almost exclusively upon the text of the contract, and paid little attention to the conditions in the tunnel. Those conditions had changed importantly after the spring thaw and rains had saturated the unforeseen clay and mud in the seams of the rocks. The communications of the Government officials kept harking back to the duty of the contractor to examine the site and the test borings and learn what could be learned about the difficulties which would be encountered. But the plaintiff had done that, and had not learned of the difficulties which in fact developed. The purpose of Article 4 of the contract was to insure the contractor against that very contingency.

The contract required the contractor to protect its workmen against harm from falling rocks, and to produce a safe, solid, usable tunnel. We think the Government officials felt that they could save the Government money and at the same time subject the Government to no risk, by standing on the terms of the contract. If the temporary protection which they insisted was sufficient did not produce a good tunnel, the contractor was still obligated to produce a good tunnel, and the Government could not lose by the experiment.

The Government urges that the plaintiff's difficulties were of the plaintiff's own making; that if it had proceeded immediately to line the tunnel after it had holed it through, the rock would not have been so unstable. The Government urges that the strong current of air which blew through the tunnel after it was holed through made the rock unstable, and that the tarpaulin coverings over the openings were not sufficiently airtight. It would be difficult to maintain an

airtight seal over the ends of a tunnel which was being worked in. And we think a current of air blowing through a tunnel, the roof of which was dripping with water, would have had no significant effect upon the stability of the rock in and above the roof.

The Government claims finality for the decision of the contracting officer, affirmed by the Claims and Appeals Board. Under the Act of May 11, 1954, 68 Stat. 81, the "Wunderlich Act", that decision does not have finality unless it is supported by substantial evidence. We think that on consideration of all the evidence, the contracting officer's decision cannot be said to have substantial support.

The Government urges that in this case the plaintiff did not present its case fully to the Claims and Appeals Board, since it presented only four witnesses before the Board, but presented fifteen witnesses at its trial in this court. The Government says that the plaintiff used the Board as a mere waystation in its progress to this court, and thus did not give the Board a fair chance to decide the case on substantially the same evidence which has been presented in this court. So far as concerns the difference in the number of witnesses, several of the additional witnesses in this court gave unimportant testimony. But some of the expert witnesses who did give important testimony in this court, did not testify before the Board.

In our opinion in *Valentine and Littleton v. United States*, 136 C. Cls. 638, holding that the trial in this court should not be limited to the record made before the contracting agency, but should be *de novo*, we recognized that there were logical weaknesses in our position. We concluded, however, that the intent of Congress in enacting the Wunderlich Act was in accord with our conclusion, and we adhere to that conclusion in this case.

The plaintiff claims that, in addition to the extra expense of installing the permanent steel protection in the tunnel, it was put to extra expense by being delayed by the contracting officer's refusal for a considerable time to authorize it to install the permanent protection. The plaintiff says that the delay threw the work of constructing the concrete lining of the tunnel into the winter months, so that it had to heat its concrete and incur other extra costs on that account. We

have found that there was delay and expense resulting from the cause alleged by the plaintiff. *F. H. McGraw and Company v. United States*, 113 C. Cls. 29.

By stipulation of the parties, the instant proceeding has been limited to the decision of the question of liability. Our conclusion is that there is liability of the defendant to the plaintiff. The amount of the plaintiff's recovery will be determined pursuant to Rule 38 (c).

It is so ordered.

McLAUGHLIN, *District Judge*, sitting by designation;  
WHITAKER, *Judge*; and JONES, *Chief Judge*, concur.

LARAMORE, *Judge*, took no part in the consideration and decision of this case.

#### FINDINGS OF FACT

The court, having considered the evidence, the report of Commissioner William E. Day, and the briefs and argument of counsel, makes findings of fact as follows:

1. Plaintiff is a corporation organized and existing pursuant to the laws of the Commonwealth of Massachusetts with its principal office and place of business in Framingham, Massachusetts.

2. On or about July 3, 1946, the plaintiff and the defendant, acting through the War Department, Corps of Engineers, as a result of competitive bids submitted, entered into a contract for the construction of an earthen dam across Canacadea Creek, Almond, Steuben County, New York. The work was to be performed in strict accordance with the specifications, schedules and drawings (which were prepared by the defendant) for an estimated consideration of \$3,330,330 based upon unit prices for the various categories of work items. The contract provided that work should begin within 10 days after receipt by the plaintiff of notice to proceed, and be completed not later than 900 calendar days after that date. The time for completion of performance was extended to June 30, 1949, by Modification No. 15. The work was satisfactorily completed on that date and formally accepted on behalf of the defendant by the contracting officer by letter of July 20, 1949.

3. Pursuant to Rule 38 (c), by stipulation between the parties hereto, the trial was limited to the issues of law and

fact relating to the right of plaintiff to recover, reserving for determination by further proceedings, if necessary, the amount of recovery.

4. The contract specifications provided for the blasting through rock of a tunnel approximately 710 feet long for the diversion of water. Before placement of the concrete lining, the bore of the tunnel was approximately 17 feet in diameter. The finished bore with concrete lining in place was 13 feet in diameter. This action was brought to recover increased costs which the plaintiff says it incurred by reason of changed conditions encountered which required the installation of steel tunnel protection in the form of steel arch ribs and liner plates throughout the length of the tunnel, and also by reason of alleged delays in the work because of the failure and refusal by the defendant to direct the installation of such support as a pay item.

5. Pertinent and material provisions of the plaintiff's contract are as follows:

ARTICLE 4. *Changed conditions.*—Should the contractor encounter, or the Government discover, during the progress of the work subsurface and/or latent conditions at the site materially differing from those shown on the drawings or indicated in the specifications, or unknown conditions of an unusual nature differing materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the plans and specifications, the attention of the contracting officer shall be called immediately to such conditions before they are disturbed. The Contracting Officer shall thereupon promptly investigate the conditions, and if he finds that they do so materially differ the contract shall with the written approval of the Secretary of War or his duly authorized representative, be modified to provide for any increase or decrease of cost and/or difference in time resulting from such conditions.

ARTICLE 5. *Extras.*—Except as otherwise herein provided, no charge for any extra work or material will be allowed unless the same has been ordered in writing by the contracting officer and the price stated in such order.

ARTICLE 15. *Disputes.*—Except as otherwise specifically provided in this contract, all disputes concerning questions of fact arising under this contract shall be decided by the contracting officer subject to written ap-

peal by the contractor within 30 days to the head of the department concerned or his duly authorized representative, whose decision shall be final and conclusive upon the parties thereto. In the meantime the contractor shall diligently proceed with the work as directed.

**ARTICLE 25. Accident Prevention.**—In order to protect the life and health of employees in the performance of this contract, the contractor will comply with all pertinent provisions of the "Safety Requirements for Excavation—Building—Construction" approved by the Chief of Engineers, December 16, 1941, as revised 15 March 1943 (a copy of which is on file in the office of the contracting officer) and as may be amended, and will take or cause to be taken such additional measures as the contracting officer may determine to be reasonably necessary for this purpose. The contractor will maintain an accurate record of and will report to the contracting officer in the manner and on the forms prescribed by the contracting officer, all cases of death, occupational disease and traumatic injury arising out of or in the course of employment on work under this contract. The contracting officer will notify the contractor of any non-compliance with the foregoing provisions and the action to be taken. The contractor shall, after receipt of such notice, immediately correct the conditions to which attention has been directed. Such notice, when served on the contractor or his representatives at the site of the work, shall be deemed sufficient for the purpose aforesaid. If the contractor fails or refuses to comply promptly, the contracting officer may issue an order stopping all or any part of the work. When satisfactory corrective action is taken, a start order will be issued. No part of the time lost due to any such stop order shall be made the subject of claim for extension of time or for excess costs or damages by the contractor.

**6. Pertinent and material provisions of the specifications made a part of the contract are as follows:**

**GC-3. SITE INVESTIGATION AND REPRESENTATIONS.**—The Contractor acknowledges that he has satisfied himself as to the nature and location of the work, the general and local conditions, particularly those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of



weather, river stages, tides or similar physical conditions at the site, *the conformation and condition of the ground, the character, quality and quantity of surface and subsurface materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the work* [Italics supplied] and all other matters which can in any way affect the work or the cost thereof under this contract. Any failure by the Contractor to acquaint himself with all the available information concerning these conditions will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the work. The Government assumes no responsibility for any understanding or representations made by any of its officers or agents during or prior to the negotiation and execution of this contract, unless (1) such understanding or representations are expressly stated in the contract and (2) the contract expressly provides that responsibility therefor is assumed by the Government. Representations made but not so expressly stated and for which liability is not expressly assumed by the Government in the contract shall be deemed only for the information of the Contractor and the Government will not be liable or responsible therefor.

TP4-02. *TUNNEL EXCAVATION.—a. Scope.—*

The tunnel bore may be driven from either or both ends by any of the usual methods of tunneling, provided the driving is continuous and progress is consistent with that indicated on the progress schedule. *Temporary tunnel protection shall be provided where required for safety of the workmen and shall be placed progressively after each heading blast* [Italics supplied] and prior to resumption of excavation and drilling operations. The tunnel shall be maintained free of water by means of drains and sump pumps. Tunnel dust shall be kept under proper control by wet drilling and sprinkling. The tunnel shall be adequately lighted and ventilated. Only electric or air motorized equipment shall be used in the tunnel. An adequate power supply shall be available at all times. All rock projections inside the tunnel neat line shall be removed and overbreak beyond the tunnel pay line shall be backfilled with approved material, compacted to the required density without cost to the Government. Where and as the arch ribs and liner plates are placed to the designated grade and alignment, the overbreak voids at the crown and haunches shall be progressively backpacked with selected tunnel excavation in a way that will hold the completed tunnel protection on

line and grade. Where such tunnel protection is not required all overbreak beyond the tunnel pay line shall be backfilled with concrete. Such work shall be done together with placing of the concrete tunnel lining. After the concrete tunnel lining is in place and prior to tunnel and collar grouting the entire length of the tunnel shall be grouted at a pressure not to exceed five pounds to complete filling remaining overbreak voids. Such grouting including furnishing and placing of grout pipes will not be paid for as a unit and all costs shall be included in the contract unit price for tunnel concrete lining. Disposal of tunnel excavation shall be in accordance with subparagraph TP3-Old.

*b. Blasting.*—Blasting procedure shall be in accordance with subparagraph TP3-05 b (3). At the outset and as the work progresses throughout the length of the tunnel, the breaking qualities of the rock structure encountered shall be observed and the spacing, depth, loading and shooting sequence of the holes shall be adjusted accordingly so as to keep to a minimum overbreak and shattering of the rock formation outside the tunnel excavation limits. The Contractor shall be responsible for all overbreak and shall replace it with approved material and placing methods without cost to the Government. All blast-loosened rock still in place shall be immediately broken out or working conditions otherwise made safe by the placing of temporary protection.

**TP4-03. TUNNEL PROTECTION.—a. Scope.**—Tunnel protection shall be furnished and placed as required for distances of approximately the first 50 feet at each end of the tunnel which includes the underground portion of the outlet transition. Such tunnel protection conforming to the cross sectional shape of the tunnel and transition, shall consist of steel arch ribs and corrugated steel liner plates as indicated on the drawings or required, including tie rods and spreaders. Liner plates shall be placed before the setting of ribs. In erecting, each arch rib shall be properly spaced, set to the designated grade and alignment, and in a position normal to the tunnel axis. Each rib shall be connected to each successive one by seven (7) sets of steel tie rods and pine spreaders, uniformly spaced. The Contractor shall submit detail drawings indicating fabrication, splicing of ribs and erection methods of the proposed tunnel protection. No material delivery shall be made prior to receipt of the Contracting Officer's written approval but such approval shall not relieve the Contractor of his sole responsibility for damage resulting



from the inadequacy or lack of such protection. Steel for arch ribs, liner and splice plates, tie rods and other items necessary to tunnel protection shall be commercial products and shapes having the necessary physical and chemical qualities for the intended purpose and shall be fabricated according to the best standard practice. The erection of such tunnel protection shall be carried as close to heading blasting as is feasible without undue damage to tunnel protection in place.

*b. Steel Tunnel Protection Supports.*—Steel arch rib tunnel protection supports shall be erected in the tunnel sections, where tunnel protection is indicated on the drawings or directed by the Contracting Officer and shall be steel I-beams of the size, weight and length, and bent to the shape indicated on the drawings. The maximum center to center spacing shall be as designated. Suitable dowels shall be provided at the invert to maintain foot of ribs in proper position. Tie rods and spreaders shall be installed at the same time ribs are set. Blocking and other timber required for erection shall be furnished by the Contractor. Arch rib splicing, limited to two for each rib, shall develop the full strength of the rib. Steel ribs shall be left in place and embedded in the concrete tunnel lining.

*c. Steel Liner Plates.*—Steel liner plates for tunnel protection shall be placed in the tunnel sections, where such protection material is indicated on the drawings or directed, to furnish coverage for the tunnel roof section above the spring line. The ends of plates in adjoining rows shall be staggered and half plates furnished where necessary for this purpose. Liner plates shall be left in place and have concrete tunnel lining placed against their inner surfaces. Liner plates shall be fabricated corrugated steel plates not less than number three (3) gauge, bent to the designated radius and pressed into the required shape consisting of integral side with square corners and elongated holes for connecting bolts, similar and equal to Armco Type 18-inch section.

**TP4-04. CONCRETE TUNNEL LINING.**—*a. Scope.*—The entire tunnel bore including the outlet transition shall be lined with concrete which shall conform to the applicable requirements of Section X. *No tunnel concrete shall be placed prior to the completion of the entire tunnel bore, then its placement shall be expeditiously prosecuted to completion. . . . [Italics supplied]*

**TP4-08. PAYMENT.**—*a. Tunnel Excavation.*—Payment for tunnel excavation will be made at the contract unit price for "Tunnel Excavation—Unclassified," Item No. 10. No payment will be made for excavation beyond the pay line and all such overbreak shall be filled with suitable material or concrete as required without cost to the Government. The contract unit price shall include all costs of drilling, blasting, excavation, hauling, and disposal as specified in paragraph TP3-01d.

*b. Tunnel Protection.*—Payment for all costs of furnishing and placing liner plates, and tunnel supports, including tie rods and pipe spreaders, specified herein or directed by the Contracting Officer, will be made at the applicable contract unit price for "Steel Liner Plates," Item No. 11 and "Steel Tunnel Supports," Item No. 12. Partial payments will be made according to paragraph TP11-14.

*c. Concrete Tunnel Lining.*—Payment for furnishing and placing concrete lining in the tunnel, except the furnishing of cement, will be made at the contract unit price for "Concrete in Tunnel," Item No. 34. Payment for furnishing cement will be made at the contract unit price for "Cement," Item No. 36. All costs of concrete or repair grouting required to fill overbreak voids outside the pay line shall be included in the contract unit price for Item No. 34.

*d. Reinforcing Steel.*—Payment for reinforcing steel, placed as shown on the drawings or directed, will be made at the contract unit price for "Steel, Concrete Reinforcement," Item No. 38. (See subparagraph TP10-22c.)

**TP10-01. SCOPE OF THE WORK.**—The work covered by this Section consists of furnishing all material and equipment and performing all labor for the manufacture, transporting, placing, finishing, and curing of concrete in the structures included in these specifications.

**TP10-22. MEASUREMENT AND PAYMENT.**—*a. Concrete.* . . .

*b. Portland Cement.* . . .

*c. Reinforcement.*—(1) Measurement of reinforcement will be made of the lengths of bars actually placed in accordance with the drawings or bar schedules approved by the Contracting Officer, or in accordance with the instructions of the Contracting Officer. The measured lengths will be converted to weights for the size of

bars listed by the use of the unit weights per lineal foot stated in Federal Specifications QQ-B-71a, I-5. Steel in laps indicated on the drawings or required by the Contracting Officer will be paid for at the contract unit price. No payment will be made for the additional steel in laps which are authorized for the convenience of the Contractor. Furnishing and placing reinforcement bars will be paid for at the contract unit price per pound for Item No. 38, "Steel, Reinforcement."

7. The Cabot Construction Company, plaintiff's subcontractor, performed the work of drilling, blasting and mucking in the driving of the tunnel. The Cabot firm was unusually qualified in that kind of work. The work of driving the tunnel was accomplished essentially on schedule, in a workmanlike manner and with dispatch, but not without difficulty.

8. The plaintiff upon receiving the invitation to bid for the contract, made a thorough investigation of the site. The plaintiff's chief engineer, president and general superintendent visited the site of the Almond Dam and tunnel on or about March 1, 1946. They looked for all open cut rock in the vicinity of the proposed dam on highways and the railroad nearby which might disclose the nature of the rock that would be encountered in the course of construction. To acquaint themselves as to the type of material to be encountered, they examined the area of the dam, the borrow area sites and any test pits in those areas, the site where the railroad and the highway were to be relocated, the site of the stilling basin at the tunnel outlet portal, the site of the tunnel inlet portal and the site of the spillway. The only exposed rock was near the railroad, across the valley from the tunnel and at a higher elevation. They did not find any exposed rock in the area laid out for the Almond Tunnel. They examined the specifications, schedules and drawings relating to the diversion tunnel included in the contract work. They examined the logs of the borings as shown in the contract drawings but did not examine the cores which were available for inspection at the U. S. Engineer Soils Laboratory at Ithaca, New York.

9. The Cabot firm began the driving of the tunnel on December 12, 1946. It was engaged prior to that time in open

cut excavation of rock adjacent to both the outlet and inlet areas of the tunnel. The existence of mud seams beyond the pay line on vertical slopes at the outlet end near the stilling basin caused considerable overbreak there, and resulted in apprehension on the part of the plaintiff and its subcontractor as to conditions which might be encountered as the tunnel excavation progressed. On December 10, 1946, representatives of both firms went to Baltimore, Maryland to confer with the contracting officer as to these matters. They conferred with Colonel J. S. Seybold, who told them that he would visit the site. He did so on December 12, 1946, but did not confer at the site with the plaintiff. The contracting officer (who was also district engineer at Baltimore) conferred at the site of the work with the resident engineer. As a result of the discussions referred to above payment of about \$8,000 was authorized and thereafter accomplished near the outlet area of the tunnel, for overbreak due to a vertical mud seam.

10. The crew of workmen who were engaged in driving the tunnel consisted of eleven men and a superintendent on the day shift who were engaged in drilling operations, and five men on the night shift who were engaged in mucking operations, that is, cleaning out and hauling away the rock which had been blasted after the drilling operation.

11. From the beginning of the work on the tunnel, Mr. E. F. Diehl, Vice President and Chief Engineer of Cabot Construction Company and Mr. W. D. Dunham, President of that firm, urged Mr. D. H. Mather, defendant's Resident Engineer, to make provisions to have additional steel on the job to prevent delay in the driving of the tunnel. They were advised that the only steel which would be provided would be for the 50 feet at the outlet portal and 50 feet at the inlet portal. Cabot proceeded with tunnel work at the outlet end, erecting the steel arch supports and liner plates for the first 50 feet. The roof of the tunnel for the first 50 feet was badly jointed. There were vertical intersecting seams filled with mud. The steel arch ribs were placed at 4-foot intervals as the drilling operations progressed. The liner plates were placed above the ribs. As the drilling continued beyond the 50 feet at the outlet end, the condition of the roof was about the same for the next 16 feet. The Cabot

firm requested and was given permission to install four additional units of the steel arch ribs and 16 additional feet of liner plate at the outlet end. In effect, this steel was borrowed from that which was on hand for use at the inlet end of the tunnel. When it became necessary to remove the borrowed steel for use at the inlet end, approximately 5 cubic yards of rock fell from the roof.

12. The plaintiff wrote the following letter to the resident engineer on December 18, 1946, concerning the borrowing of steel for the 16 feet of tunnel mentioned above:

Reference is made to a recent discussion which you had with Mr. Diehl and Mr. Dunham of Cabot Construction Corporation, relative to steel tunnel supports in the tunnel outlet transition.

We have a communication from them stating that they agree to replace steel supports damaged by blasting and rejected for that reason.

We concur with them in this respect and will replace steel supports so damaged at no additional cost to the government.

On December 20, 1946, the resident engineer replied to the above as follows:

The receipt is hereby acknowledged of your letter of 18 December 1946 relative to steel tunnel supports in the tunnel outlet transition.

The agreement made as stated in your letter is satisfactory.

It is thought that the cause of the difference of opinion in this matter was due to a misunderstanding of the use to which Mr. Dunham of the Cabot Construction Corporation, proposed to put the tunnel supports and to clarify the Government's position, the following references to the specifications are made.

a. TP4-02. *Tunnel Excavation. a. Scope.*—Temporary tunnel protection shall be provided for the safety of the workmen and shall be placed progressively after each heading blast and prior to resumption of excavating and drilling operations.

b. TP4-03. *Tunnel Protection. a. Scope.*—Tunnel protection shall be furnished and placed as required for distances of approximately the first 50 feet at each end of the tunnel which includes the underground portion of the outlet transition.—The erection of such tunnel protection shall be carried as close to heading blasting as is feasible without undue damage to tunnel protection in place.

According to the specifications, the two types of tunnel protection are for different purposes as indicated in the specifications. It was not considered feasible by this office to use steel tunnel protection as close to the heading as may be required for the protection of the workmen while excavating and drilling without subjecting it to destructive damage, which was the objection to so using it.

If, in the use of steel tunnel protection in lieu of temporary protection, any steel members are damaged which delay the work, no additional time will be allowed for such delays.

13. On January 10, 1947, the defendant's resident engineer sent the following letter to the plaintiff:

This letter will serve to confirm the discussion relative to tunnel protection attended by Mr. Peter Bianchi, President of Carlo Bianchi & Co., Inc., Mr. E. Diehl of the Cabot Construction Co., Tunnel Sub-Contractor, and Messrs. D. A. Losey and D. E. Mather of the Government Inspection Force. This conference was held in the Resident Engineer's Office, Thursday afternoon, 9 January 1947.

At this time it was understood and agreed that as stipulated in Par. TP4-03, *Tunnel Protection, a. Scope*, that the steel tunnel protection as defined in this paragraph, would not be placed beyond the first 50 feet of the outlet end of the tunnel including the transition section, or to approximate station 27+10. That from this station 27+10 to 21+00 approximately, temporary tunnel protection as indicated in Par. TP4-02, *Tunnel Excavation, a. Scope*, is to be used. Mr. E. Diehl's request to use steel ribs and timber lagging for this purpose is in accordance with the specifications, and therefore permissible, provided the outside edge of the steel ribs are set so as not to be inside the outside neat line of the concrete tunnel lining, and as much of the timber lagging is removed just prior to concreting as is consistent with safe working conditions. The expense is to be borne by the contractor. The material use for such temporary protection is optional as long as it furnishes adequate protection.

14. Except for the steel arch ribs and liner plates referred to above, the Cabot firm drilled the tunnel with no protection overhead except that which was provided by careful inspection of the roof as the drilling rig entered the tunnel in the morning and left in the afternoon. The roof was



examined and rock which seemed loose was removed with scaling bars.

15. The tunnel was "holed through" by March 12, 1947. Cleanup work commenced immediately by the Cabot firm but there were rockfalls after the cleanup crew had removed loose rock from the floor of the tunnel. For the first 200 feet, the cleanup crew returned to remove rock which had fallen after they had performed the cleanup operations but the rockfalls were so extensive that for the remaining 510 feet of tunnel there was only one cleanup without return for further cleanup. The cleanup crew finished its work on March 25, 1947.

16. Because of the rockfall experienced during the tunnel driving operations, Mr. Diehl and Mr. Dunham of the Cabot firm requested the defendant's resident engineer, Mr. Mather, to authorize the installation of steel tunnel supports and liner plates throughout the length of the tunnel. They were told by Mr. Mather that such would not be authorized as a pay item unless there was an indication that the tunnel would cave in.

17. The assistant resident engineer, Mr. Dale Losey, testified that in light of the condition that existed at Almond Tunnel in April or May 1947 with respect to rockfall, it would be necessary to install some protection before it would be possible to line the tunnel with concrete.

18. On April 10, 1947, the plaintiff sent the following letter to the defendant's resident engineer:

The work involved in excavating the tunnel bore on this job has been completed, and it has been driven through.

Permanent tunnel protection in the form of steel Liner Plates and Tunnel Supports has been installed for distances of 50 ft. at each end of the tunnel.

The work of concrete lining the tunnel is scheduled for accomplishment early in the 1947 season.

It is our opinion that, in recognition of the extremely hazardous conditions existing inside this tunnel, immediate consideration should be given to the provision of permanent tunnel protection throughout the entire length of the tunnel.

Our workmen cannot be expected to carry on under these conditions, which would expose them to the ever-present risk of serious injury or even death from falling



rock. It can be expected that they will refuse to enter the tunnel unless and until these hazards are eliminated.

We suggest, therefore, that we be given immediate authorization to extend this permanent protection of steel supports and Liner Plates throughout the entire length of the tunnel, with compensation for same being made to us under the applicable Job Items No's. 11 and 12.

19. The assistant resident engineer on April 15, 1947, sent the following reply to the above-quoted letter:

The receipt is hereby acknowledged of your letter dated 10 April 1947 relative to tunnel protection.

My position in regard to your request for extending contract items 11 and 12 (Permanent Tunnel Lining) to protect the tunnel bore between Stas. 21+00 and 27+10.5, which is in addition to 50 feet steel lining including the outlet transition stipulated for each end of the tunnel, is the same as stated in my letter to your company dated 10 January 1947, subject: Temporary Tunnel Protection. That letter confirmed the approval at a conference on 9 January 1947, in which Mr. E. F. Diehl, Vice President of the Cabot Construction Co., proposed the use of steel ribs and timber lagging for temporary protection in accordance with Paragraph TP4-02. *Tunnel Excavation, a. Scope.* On 14 January 1947 you were advised orally that your tunnel sub-contractor was using for temporary protection upstream from Sta. 27+10.5, steel ribs purchased for Item 12, and you were advised that their use in temporary protection would be approved provided such use was confirmed in writing. This was done in a letter dated 14 January 1947 signed by Mr. T. A. Coyne. This is evidence of a clear understanding that the section of the tunnel between Stas. 21+00 and 27+10.5, that temporary tunnel protection for the safety of workmen was to be used in accordance with the applicable specifications.

The fact that your sub-contractor was able to drive the tunnel through the section in question safely without placing such temporary protection does not in any way relieve you of your responsibility for protection of the work and workmen during the operations required for placing the concrete tunnel lining.

In reference to the fifth paragraph of your letter as required by the specifications you are responsible for the safety of all workmen on your contract and shall provide during construction at your own expense adequate safety protection for them and the work involved.

Therefore, the further procurement and placing of contract items 11 and 12 are not authorized.

For the Resident Engineer:

20. On April 23, 1947, the plaintiff sent the following letter to the resident engineer with a copy to Colonel J. S. Seybold, District Engineer, Baltimore, Maryland:

*Re: Permanent Tunnel Protection*

We have received a letter dated April 15, 1947, from Mr. Dale A. Losey, Assistant Resident Engineer, in reply to ours of April 10, 1947, on the above subject.

We wish to point out that the request contained in our letter of April 10 does not concern itself with the matter of temporary tunnel protection; it is concerned wholly with the permanent type of tunnel protection as described in the contract specifications paragraph TP4-03.

The specifications clearly indicate that the Government intended installation of permanent steel supports and liner plates to a distance of 50 feet in from each end of the tunnel and for such additional distance as conditions would require.

Ever since the start of rock excavation work on this project, and even prior to the time when the actual tunnel excavation was started, the question of the character of the rock that would be encountered in the tunnel has been the subject of discussions with the Resident Engineer and his staff. These discussions were participated in by our subcontractor, Cabot Construction Corporation, as well as ourselves. We consistently maintained the position that the character of the rock within the tunnel was such that provisions should be made for permanent tunnel protection. The Resident Engineer took the position that the permanent tunnel protection would be authorized only for 50 feet from each end.

In view of the position taken by the Government, the subcontractor was required to proceed with the excavation of the tunnel without the installation of permanent tunnel protection, employing temporary tunnel protection of its own devising in order to afford the necessary protection for its workmen.

As a result of the failure of the Government to authorize the installation of permanent tunnel protection during the progress of excavation, there have now developed large areas where the tunnel roof has disintegrated or failed, and there are piles of dislocated material on the floor of the tunnel.

In view of the now known facts with reference to the dislodgment or failure of large areas of the tunnel roof, a condition which could have been anticipated and prevented had the Government acceded to our request for permanent tunnel protection, we now again request that the Government authorize the installation of the permanent tunnel protection, together with the necessary and obvious corrective measures incidental thereto, at the Government's expense.

May we have the courtesy of a prompt reply granting to us the above-requested authorization?

21. The letter of transmittal to Colonel Seybold of the copy referred to above, bearing the same date, is quoted below:

We are enclosing for your consideration and record a copy of a letter which we have today addressed to Mr. D. E. Mather, Resident Engineer. The subject matter involved is of vital importance to the orderly progression of this project. It is not our desire to engage in controversies with the Government, but we feel very strongly that the conditions now existing could have been avoided had we been granted the authority we requested.

22. On May 5, 1947, Colonel Seybold sent the following letter to the plaintiff by registered mail:

Reference is made to your contract number W-30-180-eng.-397, providing for construction of Almond Dam at Almond, New York, and to your letter dated 23 April 1947 inclosing for my consideration your letter of even date addressed to my Resident Engineer requesting an authorization to place at contract prices additional permanent protection in the tunnel.

I have caused an examination to be made of the contract documents and the circumstances and events that have preceded your request and I have found as follows:

a. Contract drawing sheet No. 7 shows foundation exploration data that indicates the type and character of the material that would be encountered during the tunnel driving and lining operation.

b. Paragraph SC-7a of the specifications notified all parties interested in this project that samples of the materials removed from the foundation exploration holes were available for inspection at the U. S. Engineer Soils Laboratory at Ithaca, New York.

c. Paragraph GC-3 of the specifications annotated for the information of prospective bidders, certain items

of consequence with respect to site and job conditions. Your acceptance of the contract indicates that you have satisfied yourself as to these conditions including sub-surface conditions.

d. Contract drawing sheet No. 24 clearly indicates tunnel protection 50 feet back from the face of each portal of the tunnel.

e. Paragraphs TP 4-03 (a) and (c) of the specifications also describes and indicates the limits of tunnel protection "as required for distances of approximately 50 feet at each end of the tunnel." This limitation to hold unless directed otherwise.

f. Paragraph TP 4-02 of the specifications contains a statement that "temporary tunnel protection shall be provided where required for safety of the workman."

Under the terms of the contractual requirements cited above, I consider that the Government clearly and in a very exact manner indicated the extent to which the Government would require and assume payment for permanent tunnel lining. I also consider that sufficient data was available for you to make a proper consideration of the tunnel protection which would be necessary for you to install in order to provide adequate protection against damage to completed work as well as the safety of your workmen.

A review of the records of my Resident Engineer indicates that he consulted with your representative prior to the commencement of the tunnel work and advised you fully and correctly as to the extent of both the Government's responsibility and your responsibility in placing tunnel lining beyond the limits required and indicated for payment.

Interim correspondence indicates that you were periodically aware of the gradual deterioration of the rock in the tunnel which did not commence until the tunnel was completely holed out, yet you apparently took no action to protect either yourself or the interest of the Government.

It is my decision, in view of the above finding, that no further tunnel lining will be placed at the expense of the Government. Furthermore, my Resident Forces will be instructed to require that adequate precautions be taken to insure the safety of all personnel when your tunnel operations are resumed.

If you wish to appeal my decision in the matter, you are advised of your rights of appeal within 30 days from date of receipt of this letter as provided under the terms of Article 15 of the contract.

23. The plaintiff on May 29, 1947, filed a timely appeal from the contracting officer's decision.

24. On May 26, 1947, following a conference at Baltimore with Colonel Seybold and his staff, the plaintiff wrote the following letter to the contracting officer:

Reference is made to the letter which we addressed to your Resident Engineer on April 23, 1947, and to your reply dated May 5, 1947 (File #NABVK).

On the occasion of our recent conference with you and members of your staff at Baltimore on May 12, we pointed out the importance of proceeding with the installation of the tunnel lining, and therefore requested that the Contracting Officer give us an indication of the type and character of permanent tunnel protection so that we could place orders for the materials. In response to our request the Contracting Officer directed that we submit for approval a description of the tunnel protection which we would recommend.

After careful consideration, and consultation with Cabot Construction Corporation, our subcontractor on the tunnel work, and with our Consulting Engineer, Mr. Miles N. Clair, Vice President, The Thompson & Lichtner & Co., Inc., Boston, Mass., and with Mr. F. J. Crandell of Liberty Mutual Insurance Company, Boston, we are of the opinion that the minimum permanent tunnel protection which we believe will meet the requirements of the situation adequately, and for which we request the approval of the Contracting Officer is the use of the same ribs and liner plates as were used in the installation at the portals, for the entire length of the tunnel.

Due to the fact that this is a situation requiring immediate attention and decision on the part of all concerned, we earnestly suggest that you give the subject your immediate attention and inform us promptly whether or not the above proposed type of tunnel protection is approved.

In taking these steps to assure progress of the work in the interest of the government, we do not waive any rights related to the appeal we are taking to the ruling contained in your letter of May [5], 1947.

25. On June 13, 1947, the contracting officer sent the plaintiff the following letter:

Reference is made to your letter dated 26 May 1947 wherein you submit a proposal for the safe protection of your workmen in the tunnel at Almond Dam under your Contract No. W-30-180-eng-397.

Your request refers to "Permanent Tunnel Protection". You are advised that no permanent tunnel protection will be required to be installed in Almond Dam Tunnel in addition to that protection already installed and paid for under contract payment items numbers 11 and 12. Also, you are advised that "Permanent Tunnel Protection" required under this contract is at the portals only and is protection designed to withstand earth pressures.

Temporary tunnel protection as required under the provisions of paragraph TP4-02 of the contract specifications is temporary in that its only function is to support a falling rock load and prevent injury to your workmen. The greatest load to which it will be subjected will be the dead load of the back packed materials.

In paragraph 3 of your letter, you state that you are of the opinion that the minimum permanent tunnel protection that will meet the requirements of the situation adequately and for which you request approval are the same ribs and liner plates used at the portals. If you desire to use this design of tunnel protection throughout the tunnel length, its use is approved. You are advised, however, that this type of installation is considered as an over design for the purpose required and will be a more costly installation to you than is considered necessary.

It is suggested and recommended to you that adequate temporary protection may be obtained by using I beam ribs of about 3 inches and 6 pound weight spaced 4 to 8 feet apart (depending on the overbreak) with 2" timber lagging. The void area in the arch would then be uniformly packed with shale or bank run gravel in a manner to insure a uniform load distribution. Protection of this kind will be adequate to support the falling rock load as well as the material used in back packing. Favorable consideration will be given to a proposal of comparable design.

It might be called to your attention that a scheme similar to the above was proposed to my Resident Engineer by a representative of your subcontractor, the Cabot Construction Company, at the time tunnel excavation was commenced.

It is to be understood that the contents of this letter are not to be construed as a reversal of my decision to you dated 5 May 1947 to the effect that no payment would be made by the Government for the additional tunnel protection required to complete work under your contract.



26. In the meantime, the plaintiff had requested advice from F. J. Crandall, Assistant Vice President of the Liberty Mutual Insurance Company, and Chief Engineer of its Loss Prevention Department. This firm was the plaintiff's carrier as to workmen's compensation, liability and property damage insurance. Mr. Crandell was an engineer of over 30 years' experience whose specialty was roof control in tunnel work. Crandell inspected the tunnel on April 14, 1947 for the purpose of determining the safety of the roof condition in the Almond Tunnel and whether or not the conditions required the timbering of the roof section. He entered the tunnel from each end and observed the conditions existing for a distance of 200 feet from each end. He did not see the center 300 feet of the tunnel. On April 18, 1947 he sent an eight page report of his findings and conclusions to the plaintiff. The letter of transmittal is quoted below:

Attached you will find my report regarding the roof conditions in the Diversion Tunnel of the Almond Dam.

In addition to the conclusions drawn from this investigation that are incorporated in the report, I wish to mention at this time that the installation of the braces, in the Diversion Tunnel, that will be necessary will, no doubt, be a dangerous operation.

The length of time that the tunnel has been unsupported has brought the roof into a treacherous condition, and therefore I believe it advisable to study in detail the method that you intend to follow in installing the supports in the tunnel. An actual recording of the step by step procedure that will be necessary, would allow both your organization and ours to study the operation in an endeavor to pre-determine the accident causes that will exist and therefore be able to determine what should be done for the protection of the workmen during this operation.

We would deem it an opportunity to work with your operating personnel in the laying out and analyzing of their design methods for the installation of the braces in order to assure the greatest safety for this dangerous phase of the operation.

Crandell found upon his inspection and examination that the type of rock encountered in the excavation was primarily shale which showed very thin horizontal bedding layers with fractures at an angle to the bedding planes.

The interior which he examined showed bedding planes of 2- to 6-inch thickness, while at the portals they were microscopic in size. He also found that there had been numerous failures of the roof of the tunnel and that the floor of the tunnel (where he had made his observations) was covered with fallen rock for a depth of 2 to 5 feet. Crandell's conclusions in his report to the plaintiff are quoted below:

*Conclusion:*

It is my opinion that the roof of this diversion tunnel is so unstable that if left to itself failure will continue to occur and large voids will eventually show themselves in the roof of the tunnel. These voids, in all probability will take the shape of a triangle whose base will be the width of the existing bore and the two legs will be at an angle of approximately  $80^{\circ}$  with the horizontal.

Because of the low modulus of elasticity being approximately three million pounds per square inch, this material will deflect ten times as much as steel will, and in the process of this continuous deflection, microscopic fractures will occur that decreases the strength of the shape.

This tunnel is extremely unsafe and no further operations should be performed unless the roof is supported from portal to portal.

The strength of the shale in these thin bedded areas probably averages between two and four hundred pounds per square inch in tension, and the supports therefore should be approximately four feet center to center.

A large amount of scaling is necessary at the intake portal to insure the safety of further operations. All fault sections and frost heave areas should be barred down and continual scaling be performed throughout the operation.

The portal supports on the intake section of the tunnel should be extended at least ten feet outside of the tunnel in order to afford protection against falling rock from the hillside.

During the winter months, due to the low temperatures, this shale contracted. As the temperatures of spring and summertime increase, there will be a large amount of expansion in the rock. This expansion will throw stress into the rock that will produce small fractures and will continually weaken the structure. Because of this expansion medium in the rock, we can look for greater falls than have already occurred, if the condition is allowed to continue without supports.

In order to assure no tremendous dome failures, it is important that the rock in this tunnel be supported as soon as possible and thus stop the movement of the rock that is now continuing.

27. Other letters were exchanged between the parties, and on July 25 the plaintiff wrote stating that it had considered the design of tunnel protection recommended by the contracting officer, and called temporary protection by him, and that it had been advised by its consultants, and the Liberty Mutual Insurance Company, that the design was inadequate. The plaintiff then proceeded to outline a design of steel tunnel protection with which it felt that it could safely proceed, being 4-inch steel ribs, 13 pounds per foot, spaced 4 feet apart, with 1/8-inch liner plates above the ribs. Approval of this design was therein requested.

28. On August 11, 1947, the acting District engineer sent the following letter to the plaintiff:

Reference is made to your letters dated 25 July 1947 and 1 August 1947 relative to the temporary tunnel protection which you propose to install under your Contract Number W-30-180-eng-397 which provides for the construction of Almond Dam at Almond Dam, New York.

By letter dated 5 May 1947 you were furnished a decision by Colonel J. S. Seybold, then District Engineer, to the effect that the tunnel protection remaining under your contract would consist of temporary protection placed in accordance with paragraph TP 4-02 of the contract specifications as a safety precaution for the workmen at no additional cost to the Government. You have appealed this decision of the District Engineer in accordance with the terms of the contract. Subsequent to your appeal you had offered for approval a proposed plan of protection, the merits and necessity for which were clearly discussed in a letter to you from the District Engineer dated 13 June 1947.

Your letter dated 25 July 1947 outlines again the plan of protection which you are electing to use. You also express your views with respect to probable differences in cost between your proposed plan and the scheme suggested by this office as adequate. Your letter cites the interests of the Government in the matter as an extra and infers a liability for costs on the part of the Government. It becomes necessary, therefore, to advise you that the decision of the District Engineer and your subsequent appeal will be reviewed and a final

decision rendered by higher authority as soon as an orderly processing of your appeal can be accomplished. In the meantime, severe inexcusable delays to the work are resulting from your failure to proceed and it is not believed that your interests will be furthered by continuing correspondence on the matter.

The Government position has been made clear in the previous correspondence and is summarized briefly as follows:

a. In accordance with paragraph TP 4-02 of the contract specifications "temporary tunnel protection shall be provided where required for safety of the workmen". The installation of this temporary protection is not structurally necessary to insure the safety of the completed tunnel structure and need be designed only to support a falling stone load and backfilled material in the tunnel overbreak area. The design suggested by this office is considered adequate for that purpose and will be approved for use if you wish to reconsider our plan. However, since the safety of your workmen is your responsibility you must, of course, provide a protection which you consider adequate for their safety, therefore, no objection will be made to the protection plan which you propose to use. Under the terms of the contract all costs will be accrued to you unless found otherwise by higher authority.

29. The plaintiff, on August 15, advised the contracting officer, via the resident engineer, that its consultants had recommended to it that the problem of tunnel protection should be referred to an eminent and nationally known authority for special study and that this had been done, and that such authority had concurred in plaintiff's view that the district engineer's recommendation concerning such tunnel protection was inadequate.

30. Mr. Miles N. Clair, a consulting civil engineer with wide experience in tunnel work examined the Almond Tunnel on May 1, 1947. His examination covered the entire tunnel from the inlet portal to the outlet portal downstream. He observed dripping water from the numerous silt or clay joints in the tunnel roof, substantial rockfalls on the floor of the tunnel and that the roof was flat in the areas where rock had fallen leaving triangular shaped areas 3 or 4 feet deep. It was his opinion that these flat roof sections were potential locations for additional falls and that the roof

was very unstable. He found that this condition existed on May 1, 1947, also on August 7, 1947, when he again examined the tunnel. He recommended to the plaintiff that it should not proceed with the concrete lining of the tunnel unless supports were installed equal in supporting value to the permanent tunnel protection already installed at the inlet and outlet portals. Mr. Clair advised the plaintiff that the proposed protection suggested by the contracting officer in his letter of June 13, 1947 was not sufficient and would be inadequate.

31. Mr. Leslie F. Worsell, a senior mine and tunnel inspector in the Division of Industrial Safety Service, Bureau of Mines, Tunnels, Quarries and Explosives for the State Labor Department, New York State, inspected the Almond Dam Tunnel on April 23, 1947. He was accompanied on his inspection by Elford H. Richardson, Chief Engineer for the plaintiff and an engineer from the resident engineer's office. The state inspector examined the tunnel from both ends but due to falling rock was not able to go completely through the tunnel. His reason for not going all the way through the tunnel was due to the danger from the roof falling. As a result of his inspection, he informed the resident engineer that he was going to issue a State Order which would prohibit anyone from entering the tunnel except those who would erect supports to make the tunnel safe. The resident engineer stated to the state inspector that to put steel protection in the tunnel would cost \$50,000 and if he authorized this installation he might end up in Leavenworth. The state inspector recommended the installation of steel ribs and wooden lagging or steel linerplates and stated that such installation would be permanent tunnel protection because it could not be removed before concreting and would be embedded in the concrete.

The State Order was directed to the plaintiff on May 5, 1947 and reads as follows:

APRIL 30, 1947.

You are hereby directed to comply with the following requirements of Chap. 50, Laws of 1921, as amended.

Tunnel located Almond Dam Project—3 miles of Hornell, Water diversion Tunnel, County Steuben of which you are the constructor:

1. Immediately erect and maintain adequate timber or steel to control roof and rib falls of rock in tunnel. Code Rule 1372—Bulletin 25.

2. Permit no one in the tunnel until this timbering has been done, except men engaged in erection of same.

**RECOMMENDATION:** Steel ribs supporting either 2" lagging or steel plates.

The above requirements must be complied with IMMEDIATELY, unless otherwise specified herein. Address communications to Bureau of Mines, Tunnels, Quarries and Explosives, State Office Building, Albany, N. Y.

INDUSTRIAL COMMISSIONER  
May 5, 1947

32. Subsequent to June 23, 1947, the plaintiff engaged an eminent consulting mining engineer, former Chairman of the Mining Methods Committee of the American Institute of Mining and Metallurgical Engineers, Mr. J. Murray Riddell, to inspect and study the Almond Tunnel and to determine the nature of protection required before concreting. Mr. Riddell had extensive experience as a mining engineer in connection with underground operations, particularly in rock structure tunnels, and is Professor of the Department of Mining, College of Mining and Technology, Houghton, Michigan. He examined the Almond Tunnel. His findings were as follows: The rock in the tunnel consisted primarily of shale with a very limited amount of thin bedded sandstone. The structure was very nearly horizontal and badly weathered. The mass was fractured by the joint planes. There was some fracturing along the bedding planes horizontally. The joint planes, which were irregular in many instances, were filled with seams of mud or mud coating. Their angle of intersection one to the other varied between 60° and 90°. Water was dripping from the top of the tunnel in a great number of places. The sides of the tunnel were what he termed as weakened. There was evidence of rock failures from the roof. There was no adhesion in the fractures of the rock other than the mud or coating of mud, and this was very poor. There was also water seepage in the fractures from the roof structure and on the sides of the tunnel. Throughout the tunnel there had been failure of the roof, the amount of rockfall varying in different places. He found that the roof of the tunnel in mining terms would



be classified as a rotten top and that throughout the tunnel the roof was in an unstable condition. Mr. Riddell was of the opinion that the Almond Tunnel required permanent tunnel protection before concreting and recommended that the entire tunnel be lined with steel sets.

33. Plaintiff proceeded to install the steel ribs and liner plates throughout the tunnel and completed such installation between mid-August and mid-October, 1947, following which plaintiff proceeded to complete the installation of the backpacking above the linerplates, and the cleanup of the floor of the tunnel in preparation for the concrete work. Following the installation of the ribs and liner plates and the backpacking, it was necessary to do a completely new job of cleaning out the invert of the tunnel. After the cleanup of the tunnel in March 1947, subsequent rockfalls occurred and the work of the machinery such as crawler tractors and trucks and other types of equipment going back and forth through the tunnel and the spillage of material used in backpacking, caused the floor of the tunnel to disintegrate to a certain extent. All of such loose material had to be removed and the invert washed down before the concrete could be placed. Plaintiff, knowing that it would be necessary to concrete during the winter months, was required to and did prepare its concrete batching plant for winter work which required completely enclosing the plants, putting in a couple of steam boilers, piping, making installations to protect the materials before they were incorporated in the concrete, and also making provision to protect the areas after the concrete had been poured. The work described was done between mid-October and December 15. Plaintiff commenced the concreting of the Almond Tunnel on December 15, 1947, and completed it on May 8, 1948.

34. The formation and nature of the rock structure of the Almond Dam Tunnel, the logs of the borings and the drawings, were studied and investigated by numerous witnesses appearing both for the plaintiff and the defendant. They included geologists, consulting engineers and engineering representatives of both plaintiff and defendant. From the testimony of these witnesses it is apparent that vertical intersecting fractures containing mud or clay seams were found throughout the tunnel.

35. The vertical intersecting fractures containing clay or mud seams were the basic cause of the rockfalls throughout the tunnel. The vertical intersecting fractures divided the rock into vertical columns. The bedding planes were planes of weakness, not open fractures, dividing the rock into blocks or slabs. Mud was washed down from above in many of the joint cracks. When the tunnel was holed through the support of the columns of rock was removed and they were supported only by friction along the fractures, and as a result many blocks and slabs fell immediately after the tunnel excavation was completed. The weather reports for the area of the tunnel clearly show that precipitation for the months of March and April 1947 was very substantial, the total precipitation for April being 5.5 inches. This resulted in the ground being saturated and the mud in the fractures being saturated and with water seepage working through the fractures acting as a lubricant, washing the mud seams out, caused many blocks of rock to fall.

The excavating of the tunnel took place during the winter months—December through March, and during this period the ground above the tunnel was frozen and the water was frozen so that the cracks did not loosen up through the mud seams. This accounted for the smallness of the rockfalls during the excavation period. The bad falls took place in the spring. These falls indicated that the tunnel roof was not stable.

36. Another indication of the instability of the Almond Tunnel was its change in excavated shape during the period from the holing through on March 12, 1947, to the time the plaintiff installed steel ribs and liner plates. The rockfalls during this period changed the tunnel shape on the roof, haunches and invert. These changes are apparent from the cross sections of the tunnel taken by the plaintiff's engineers shortly after the holing through and at later dates before the installation of steel ribs and liner plates, thus affording a comparison of the rockfall over a period from the spring of 1947 until the fall of 1947. These cross sections taken at 10-foot intervals of the tunnel consisting of 13 sheets were examined by the plaintiff's witnesses and by the defendant's resident engineer.

The evidence establishes that, as indicated in plaintiff's exhibit 52, there were many places of flat roof where large slabs of rock had fallen out and that these large blocks of rock having fallen out left an irregular roof with much overbreakage beyond the intended line, and that this condition existed practically throughout the tunnel. These conditions indicated that the roof was unstable between stations 21+00 and 27+10.

The resident engineer from his examination of plaintiff's exhibit 52 admitted that the Almond Tunnel had changed its shape from the time of excavation to October 1947. The assistant resident engineer of the defendant admitted from his examination of plaintiff's exhibit 52 that there was a change in the invert shape at various stations and that at certain stations the rockfalls were substantial, resulting in a change in the perimeter of the tunnel.

37. Another indication of the instability of the roof structure was the fact that it would not corbel and arch well. Normally in a shale formation a rockfall from the roof would have a natural tendency to corbel itself and form an arch. This did not occur however, in the Almond Tunnel where rock fell leaving a flat roof, thus indicating that it would not corbel and arch well. The flat roof sections were potential locations for additional falls.

38. The specifications and the logs of the borings indicate that for the first 50 feet in from the portals it would be expected that weathered rock would be found. Beyond that distance the logs of the borings and the drawings containing the descriptive legends indicate that unweathered rock would be expected to be found in the tunnel interior. The plaintiff's consulting engineer, Mr. J. Murray Riddell, had prepared under his supervision plaintiff's exhibit 116, based upon his investigation and observation of the Almond Tunnel, including the drawings, logs of the borings and specifications. This exhibit is a drawing of the tunnel profile showing the various tunnel drill-holes and whether the rock expected to be found in the area of each tunnel drill-hole was weathered or unweathered based upon the designations in the logs of the borings contained in plaintiff's exhibit 4-B.

The distinction between weathered and unweathered shale

lies in the difference of the fractures and the presence or non-presence of mud seams in the fractures. Weathered rock has fractures and mud seams whereas unweathered rock may have fractures but joint fractures would be a minor exception and would not contain clay or mud seams.

The specifications prepared by the defendant's engineers were predicated upon the information contained on the drawings including the drill hole legends of weathered and unweathered rock. From this information supplied the plaintiff the defendant represented that the plaintiff could expect that rock of an unweathered nature would be found throughout the tunnel beyond the 50 feet at the portals. Drill Holes Nos. 13, 31, 32, 33, 57, and 59 indicated unweathered rock in this area. Such rock if unweathered as indicated in the drill holes referred to would be structurally sound and would not contain vertical intersecting fractures containing clay or mud seams such as were found in this tunnel area.

The defendant's geologist testified that the logs of the cores shown in the drawings at Almond Tunnel were inserted to apprise the contractor as to the sub-surface conditions and admitted that when the logs of the borings show weathered and unweathered rock a contractor should be reasonably entitled to believe that the logs are correct and that unweathered rock would be found where shown.

39. It is clear from the evidence that the concreting operation in the tunnel could only be accomplished by supporting in some manner the roof of the entire tunnel during the concreting to insure that portions of the roof would not fall into the wet concrete. This was admitted by the defendant's resident engineer and his assistant.

40. The defendant's witnesses drew a distinction between temporary and permanent tunnel protection as to the objective to be accomplished. They say that temporary protection is used to protect workmen and it is still regarded by them as temporary though it is embedded forever in concrete. As to permanent protection, it is used only to preserve the shape of the tunnel.

41. Prior to the performance of the work under the contract in suit, the defendant had had The Arkport Dam and Diversion Tunnel constructed at a location about four miles from the Almond Tunnel. The rock in the tunnel at Arkport

contained more sandstone which is stronger than the shale at the Almond Dam. The bore was 8 feet in diameter (finished bore after concreting). In the contract for the construction of the Arkport Dam and Diversion Tunnel, the defendant specified that tunnel protection in the form of steel ribs and 2-inch wood lagging would be placed if in the opinion of the contracting officer there was need for such protection. The need at Arkport must have manifested itself and the contracting officer so opined because such tunnel protection was installed throughout that tunnel. Mr. Mather was the defendant's resident engineer for both the Arkport and Almond jobs but despite the larger bore, poorer rock and shale at Almond, he withheld a recommendation for the installation of steel supports for the center 610 feet of the Almond Tunnel.

42. Plaintiff prepared its bid on the basis that the sub-surface conditions in the Almond Tunnel after excavation would be such that the roof of the tunnel would be sufficiently stable to permit plaintiff to concrete-line the tunnel without the necessity of first installing permanent tunnel protection beyond the 50 feet at the portals. The defendant accepted the bid on that basis. The vertical intersecting fractures containing clay or mud seams found in the tunnel and the resulting rockfalls after the holing through of the tunnel, making it impossible to concrete-line the tunnel without first installing permanent tunnel protection throughout the tunnel, constituted unknown conditions of an unusual nature differing materially from those which plaintiff was justified in believing did exist and from those ordinarily encountered.

43. The steel ribs installed by the plaintiff in the tunnel beyond the 50 feet at the portals which had to be left in place were embedded in the concrete within the neat line.

44. Plaintiff was ready to start the concrete lining of the tunnel by May 1, 1947 in accordance with its progress schedule and had all necessary plant and equipment available either at the job site or within ready access to the job site. The plaintiff did not have all of the equipment on the job site because it was evident from the condition of the tunnel that it would be necessary to install permanent tunnel protection so that plaintiff would not have been able to start

concreting by May 1. Plaintiff realized that it would be unable to start any concrete work in the tunnel until after permanent tunnel protection had been erected. Plaintiff knew that effecting delivery of the supports after obtaining approval for their installation and the work of installing them would take several months.

The resident engineer admitted that if the plaintiff had had all of the concreting equipment on the job in April 1947, the plaintiff could not have used it, because the plaintiff could not concrete-line the tunnel without first putting in protection, which he termed temporary.

45. The acting district engineer, on February 10, 1948, transmitted to the Chief of Engineers, U. S. Army via the Division Engineer, North Atlantic Division at New York, the contracting officer's findings of fact, the contractor's appeal, contractor's comments, and his own comments, which contained a recommendation that the contracting officer's decision be upheld and that the claim for an extra payment be denied. Following the above recommendation, the acting district engineer (who was acting for the contracting officer) said in his letter of transmittal:

7. If the appeal is sustained, the contractor would be entitled to payment from the Appropriation 21x3113 Flood Control, General in the amount of approximately \$9,000.00, i. e., if paid similar to payment under items 11 and 12, and would open the possibility for additional claims for overbreak and contingent items throughout the tunnel. This is a continuing contract and funds have not been made available for payment of the instant claim.

46. On March 17, 1948, the Division Engineer by endorsement to the material mentioned in the preceding finding, sent it on to the Chief of Engineers concurring in the recommendation of the District Engineer. His endorsement began "This appeal, involving approximately \$9,000.00 . . . ." That figure had been mentioned nowhere except in the quoted portion of the preceding finding.

47. The Corps of Engineers Claims and Appeal Board on June 17, 1948 held a hearing on the plaintiff's appeal. Wit-



nees were heard on behalf of the plaintiff and the Government.

48. On December 14, 1948, the plaintiff was notified of the adverse action by the Corps of Engineers Claims and Appeal Board and the Chief of Engineers upon the plaintiff's appeal.

49. From all the evidence of record, it is found that the failure and refusal of the resident engineer to recommend and of the contracting officer to direct the installation of steel arch ribs and liner plates caused a disruption of the sequences of operations, as well as delay in the performance of the work by the plaintiff. It required that concreting operations, which the plaintiff could, and would have performed in warm weather, be accomplished in winter weather with resulting loss of efficiency.

50. The finding as to the extent of such delay is reserved for later determination.

#### CONCLUSION OF LAW

Upon the foregoing findings of fact, which are made a part of the judgment herein, the court concludes as a matter of law that plaintiff is entitled to recover and judgment will be entered to that effect. The amount of recovery will be determined pursuant to Rule 38 (c).

## APPENDIX B

# In the United States Court of Claims

No. 466-54

(Decided May 9, 1952)

### CARLO BIANCHI AND COMPANY, INC. v. THE UNITED STATES

*William H. Matthews* for plaintiff. *Robert W. Knox* and  
*Robert F. Bradford* were on the briefs.

*Gerson B. Kramer*, with whom was *Assistant Attorney  
General William H. Orrick, Jr.*, for defendant.

#### OPINION

PER CURIAM: In the court's opinion of January 14, 1959 (144 Ct. Cl. 500), it was decided that the plaintiff was entitled to an equitable adjustment for the cost of installing permanent supports in the tunnel, and the case was remanded to the Trial Commissioner pursuant to Rule 38(c) to determine the amount.

The Trial Commissioner has now reported that Items 2 through 7, both inclusive, and Item 16 were reasonably related to the cost of installing the tunnel supports and the damages for the delay incident thereto and as a result of the disruption to the balance of the contract work. The court agrees with the Trial Commissioner that the plaintiff is entitled to recover for such items, but the court is of the opinion that the plaintiff is also entitled to recover its profit on the cost of installing the permanent tunnel supports and the work incident thereto, which are Items 3, 4, 5 and 16 listed in finding 5 of the Commissioner's report.

In the plaintiff's original bid, which was accepted by defendant, there was included 15 percent profit before over-

head, taxes and insurance. Plaintiff is entitled to the same profit on these items. With the addition of this profit, so computed, Items 3, 4, 5 and 16 amount to the following:

Item 3 (Finding 28)	\$35,418.81
Item 4 (Finding 32)	33,432.39
Item 5 (Finding 34)	16,115.25
Item 16 (Finding 39)	3,243.54

The amount of recovery for Items 2, 6 and 7, as found by the Trial Commissioner and approved by the court, is as follows:

Item 2 (Finding 26)	\$8,442.08
Item 6 (Finding 36)	37,189.29
Item 7 (Finding 38)	15,776.06

Items 2 to 7, both inclusive, and Item 16, as thus amended, amount to \$149,617.36, which sum plaintiff is entitled to recover.

Plaintiff is not entitled to recover the additional items claimed in its amended petition filed March 9, 1959, for the reason that the additional items claimed therein have no relation to the cost of the installation of the permanent tunnel supports; nor is the plaintiff foreclosed from recovering on the items allowed above by reason of the execution of the release, this matter having been heretofore determined by the court in its opinion filed on January 14, 1959.

Judgment will be entered for plaintiff and against the defendant in the sum of \$149,617.36.

It is so ordered.

#### [FINDINGS OF FACT OMITTED]

The court, having considered the evidence, the report of Trial Commissioner William E. Jay, and the briefs and argument of counsel, makes findings of fact as follows:

1. The plaintiff constructed an earthen dam and related works near Hornell, New York, pursuant to contract entered into between it and the United States, through the Army Engineer Corps as a flood control project. The plaintiff was paid about three and one-half million dollars for the work, sustaining a net loss of \$327,000.

2. This action was brought to recover "compensation for additional work done and reimbursement for the increased costs occasioned by Government delays and other increased

costs \* \* \* due to the failure on the part of the defendant to authorize permanent tunnel supports and liner plates in the tunnel which had been blasted through rock for a distance of 710 feet.

3. The original petition claimed damages totaling \$259,721.87. This total was made up of the following items claimed:

Schedule of Plaintiff's Increased Costs

1. Cost of Removing Extra Overbreak During Original Tunnel Driving.....	\$1,002.75
2. Cost of Removing Fallen Rock and Extra Rock to Invert Subsequent to Completion of Tunnel Driving (March 25, 1947).....	9,018.00
3. Permanent Tunnel Supports Installed After March 25, 1947.....	29,354.51
4. Backpacking Installation.....	24,979.15
5. Additional Concrete Placed.....	11,200.00
6. Heating Costs—Winter Concrete.....	45,853.08
7. Loss of Efficiency—Winter Concrete.....	18,560.00
8. Excess Supervisory, Engineering and Administrative Labor—period 1-16-49 through 6-30-49.....	35,250.01
9. Cost of principal Items of Plant and Equipment used and Maintained on Contract after 1-16-49.....	58,118.25
	<hr/>
	\$233,425.75
(15% allowance for profit on items 1-8, incl.).....	26,296.12
	<hr/>
	\$259,721.87

4. The case proceeded to trial on the issue of liability. On January 14, 1959, the court decided that the plaintiff was entitled to recover, with the amount of recovery to be determined pursuant to Rule 38(c). Finding 49 of the court reads as follows:

From all the evidence of record, it is found that the failure and refusal of the resident engineer to recommend and of the contracting officer to direct the installation of steel arch ribs and liner plates caused a disruption of the sequences of operations, as well as delay in the performance of the work by the plaintiff. It required that concreting operations, which the plaintiff could, and would have performed in warm weather, be accomplished in winter weather with resulting loss of efficiency.

5. On March 9, 1959, after leave granted by the court, the plaintiff filed its second amended petition which increased

the damages claimed to \$680,066.01. This total was made up of the following items:

Schedule of Plaintiff's Increased Costs

1.		
2.	Cost of Removing Fallen Rock and Extra Rock in Invert Subsequent to Completion of Tunnel Driving (March 25, 1947)-----	\$8,442.06
3.	Permanent Tunnel Supports Installed After March 25, 1947-----	31,248.60
4.	Backpacking Installation-----	29,392.12
5.	Additional Concrete Placed-----	13,697.96
6.	Heating Costs—Winter Concrete-----	37,189.29
7.	Loss of Efficiency—Winter Concrete-----	15,776.00
8.	Excess Supervisory, Engineering and Administrative Labor—period 1-16-49 through 6-30-49-----	32,367.87
9.	Cost of Principal Items of Plant and Equipment used and Maintained on Contract after 1-16-49-----	49,400.51
10.	Stockpiling of Impervious Material From Spillway Excavation, and Later Re-excavating and Placing same in the Closure Section of the Dam Embankment-----	59,261.80
11.	Excess Costs of Maintaining and Operating Earth Handling Equipment in Construction of Dam Embankment-----	249,619.14
12.	Excess Costs of Supervisory and Engineering Personnel Employed in Construction of Dam Embankment-----	21,186.13
13.	Salary of Assistant Superintendent in Charge of Concrete and Structures May 1, 1947 to August 7, 1947 (during which period no concrete was poured) Plus Loss of his Efficiency During the Period August 7, 1947 to October 14, 1947-----	3,116.57
14.	Cost of Maintaining Equipment for Concrete Operations, Idle from May 1, 1947 to August 7, 1947; also Loss of Efficiency of such Equipment During the Period from August 7, 1947 to October 14, 1947-----	31,257.03
15.	Loss of Efficiency—Winter Rock Excavation for the Spillway December 5, 1947 through April 15, 1948--	14,315.80
16.	Engineering Consultant's Services re Type of Permanent Tunnel Protection Required Prior to Concrete Lining-----	2,820.47
		<hr/>
		\$599,091.55
	(15% allowance for profit on items 2-9 and 11-16 incl.)-----	80,974.46
		<hr/>
		\$680,066.01

6. After the performance of all the work and the acceptance thereof by the defendant, the 37th and final estimate was prepared by employees of the Corps of Engineers for signature by the appropriate officer of the plaintiff. It showed a balance due plaintiff of \$12,236.56. This was returned, signed by an officer of the plaintiff, together with a release executed on behalf of the plaintiff which provided in pertinent part as follows:

Now, therefore, In consideration of final payment under such contract in the amount stipulated above, the undersigned Contractor hereby releases the United States of America, its officers and agents, from any and all claims and demands whatsoever arising under or by virtue of said contract, except as follows:

The contractor reserves its right to pursue further, through appropriate channels, the subject matter of the various claims presented to the Corps of Engineers Claims and Appeals Board and docketed before that Board as Appeal No. 14. The contractor also reserves the right to pursue its claim for damages arising out of the use or non-use of material from Borrow Area No. 3; and also its claim for anticipated profit by reason of the Government's action in eliminating from the contract the Riprap originally provided for placement in the Railroad Protection Embankment.

Executed this 11th day of February, 1950.

Thereafter, on March 9, 1950, a check in the sum of \$12,736.56 was issued by the defendant and paid to the plaintiff. This included a \$500 amount which had been withheld on an earlier voucher.

7. On May 8, 1947, the contracting officer had sent to the plaintiff by registered letter his decision as to the installation of tunnel supports in the 610 feet of the tunnel which provided in pertinent part as follows:

It is my decision, in view of the above findings, that no further tunnel lining will be placed at the expense of the Government. Furthermore, my Resident Forces will be instructed to require that adequate precautions be taken to insure the safety of all personnel when your tunnel operations are resumed.

If you wish to appeal my decision in the matter, you are advised of your rights of appeal within 30 days from



date of receipt of this letter as provided under the terms of Article 15 of the contract.

8. The plaintiff on May 29, 1947 appealed this decision of the contracting officer by addressing a registered letter to the Secretary of War in the following terms:

In connection with the provisions of Article 15 of our contract with the War Department for the construction of Almond Dam, we herewith appeal from the decision of the District Engineer under date of 5 May 1947, wherein the District Engineer ruled that "no further tunnel lining will be placed at the expense of the Government".

We respectfully request the opportunity to submit evidence and a brief in support of our appeal at the appropriate time.

Will you kindly acknowledge receipt of this appeal?

9. The above appeal was docketed with the Corps of Engineers Appeal Board as Eng. C&A Board No. 14. After much documentary information was submitted and a hearing requested, a hearing was held on June 17, 1948 by the Board in Washington at which plaintiff was heard by counsel and the testimony of its witnesses. In his opening statement to the Board, Charles A. McCarron, plaintiff's attorney, stated in pertinent part as follows:

For the purpose of the record, I am Charles A. McCarron, counsel for appellant. Perhaps a brief statement, may it please the Board, of the position of the appellant may be helpful in following the evidence as we propose to present it. In many respects there are no substantial differences between the Government and the contractor on certain of the basic facts that will develop in this case. Mr. Fox has clearly stated the position of the appellant to this extent that the appellant has lined this entire tunnel with steel liner plates and appears before this Board asking in equity and good conscience that it be reimbursed by the Government for the installation of these steel liner plates which the contractor felt were absolutely necessary in order to line this tunnel and complete the tunnel job because of the character of the rock that was encountered in the course of boring this tunnel, rock which could not be determined by the information available on the contract drawings and cores that were taken by the Engineers prior to award of this contract. \* \* \*

10. As may be seen from the cost of performing the work of constructing the Almond Dam, and its related works, it was a large undertaking. It required excavation of material of various kinds or classes from either borrow areas or cuts including rock and placement of such of the material as was suitable therefor into embankment. In round figures in excess of 2 million cubic yards of material were excavated (some of which was unusable and therefore wasted or thrown aside) and about one million six hundred thousand cubic yards of material were placed in embankment.

11. The contract provides in part as follows:

*ARTICLE 16. Payments to contractor.*

(d) Upon completion and acceptance of all work required hereunder, the amount due the Contractor under this contract will be paid upon the presentation of a properly executed and duly certified voucher therefor, after the Contractor shall have furnished the Government with a release, if required, of all claims against the Government arising under and by virtue of this contract, other than such claims, if any, as may be specifically excepted by the contractor from the operation of the release in stated amounts to be set forth therein.

12. The specifications provide in part as follows:

*SW-2. Principal Features.* The work to be performed includes the following principal features:

- (1) Diversion and care of stream during construction.
- (2) Construction of approximately 1,300 linear feet of earth dam.
- (3) Construction of outlet works, consisting of intake structure and operating house, concrete-lined tunnel, stilling basin, and approach and outlet channels.
- (4) Construction of saddle type spillway, consisting of concrete ogee spillway weir, a concrete-lined apron, and approach and outlet channels.
- (5) Construction of steel service bridge.
- (6) Construction of railroad protection embankment.
- (7) Relocation of railroad except ballast and track work.
- (8) Relocation of highway including embankment, temporary gravel surfacing, guard rail and guide posts.
- (9) Construction of gravel-surfaced access road.

- (10) Construction of lighting and power system.
- (11) Installation of materials and equipment furnished by the Government.

The above general outline of principal features does not in any way limit the responsibility of the Contractor to perform all work and furnish all plant, labor and materials required by the specifications and the plans and drawings referred to therein.

GC-5. *Progress Charts, and Requirements for Sunday, Holiday and Night Work.* a. The Contractor shall within five days or within such time as determined by the Contracting Officer, after date of commencement of work, prepare and submit to the Contracting Officer for approval a practicable schedule, showing the order in which the Contractor proposes to carry on the work, the date on which he will start the several salient features (including procurement of materials, plant and equipment) and the contemplated dates for completing the same. The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion at any time. The Contractor shall enter on the chart the actual progress at the end of each week or at such intervals as directed by the Contracting Officer, and shall immediately deliver to the Contracting Officer three copies thereof.

b. The Contractor shall furnish sufficient forces, construction plant and equipment, and shall work such hours, including night shifts, overtime operations and Sunday and holiday work, as may be necessary to insure the prosecution of the work in accordance with the approved progress schedule. If, in the opinion of the Contracting Officer, the Contractor falls behind the progress schedule, the Contractor shall take such steps as may be necessary to improve his progress and the Contracting Officer may require him to increase the number of shifts, and/or overtime operations, days of work and/or the amount of construction plant, all without additional cost to the Government.

c. Failure of the Contractor to comply with the requirements of the Contracting Officer under this provision shall be grounds for determination by the Contracting officer that the Contractor is not prosecuting the work with such diligence as will insure completion within the time specified. Upon such determination the Contracting Officer may terminate the Contractor's right to proceed with the work, or any

separable part thereof, in accordance with the Delays-Damages Article of the contract.

GC-8. *Protection of Material and Work.* The Contractor shall at all times protect and preserve all materials, supplies and equipment of every description (including property which may be Government-furnished or owned) and all work performed. All reasonable requests of the Contracting Officer to inclose or specially protect such property shall be complied with. If, as determined by the Contracting Officer, material, equipment, supplies and work performed are not adequately protected by the Contractor such property may be protected by the Government and the cost thereof may be charged to the Contractor or deducted from any payments due to him.

#### SPECIAL CONDITIONS

##### SC-1. *Commencement, Prosecution and Completion.*

a. The Contractor will be required to commence work under this contract within 10 calendar days after the date of receipt by him of notice to proceed, to prosecute said work with faithfulness and energy, and to complete the entire work ready for use not later than 900 calendar days after the date of receipt by him of notice to proceed. The time stated for completion shall include final clean-up of the premises.

b. The specified time for completion of the contract will be extended by the amount of time lost due to flooding of the work, when such flooding occurs as a result of the stream rising above and overtopping the upstream cofferdam provided it is built and maintained as specified in Section I of these specifications. No extension of time will be granted for completion of the closure section of the dam embankment which shall be completed during the season in which it is started. (See subparagraph TP6-01d.) No extension of time will be made for flooding of the protected area after the time fixed for completion of the contract plus any authorized extensions thereof or where the flooding of the work is due to fault or negligence of the Contractor, as determined by the Contracting Officer. Time extensions allowed for flooding will be computed from the day when overtopping occurred to and including the day when unwatering and clean-up operations have been sufficiently completed to permit resumption of work within

the protected areas; provided that the work of unwatering and clean-up has been prosecuted in as rapid and diligent a manner as practicable. Any extension of time granted the Contractor due to flooding shall not be a basis of a claim against the Government.

c. In the event that the total amount actually due the Contractor for work performed hereunder exceeds the total *estimated* amount due under the contract as set forth in Article 1 thereof, the time for completion will be extended in the proportion that such *excess* bears to the total *estimated* amount due under the contract. Should the total payments hereunder be less than the total estimated amount of the contract, the date of completion as specified in paragraph a above will not be affected.

SC-2. *Liquidated Damages.* In case of failure on the part of the Contractor to complete the work within the time fixed in the contract or any extensions thereof, the Contractor shall pay the Government as liquidated damages the sum of \$250 for each calendar day of delay until the work is completed or accepted.

#### SC-7. *Physical Data.*

c. *Transportation Facilities.* (1) *Highways.* State Highway No. 36 crosses the dam site and is to be relocated in part under this contract. For protection of highway traffic during construction, see paragraph TP1-03.

(2) *Railroads.* The Erie Railroad passes the dam site and is to be relocated in part under this contract. The Erie Railroad and the Pittsburgh, Shawmut and Northern Railroad serve Hornell, New York. The railroads report sidings at Hornell for the accommodation of approximately 190 cars. The Contractor shall investigate the availability of sidings both at the site of the work and elsewhere and shall make all necessary arrangements with the railroads for the delivery of materials and equipment. For the protection of railroad traffic during construction, see paragraph TP1-04.

SC-19. *Protection of Existing Structures, Utilities and Work.* a. The Contractor shall protect all existing structures, utilities and work of any kind against damage or interruption of service. Damage or interruption of service resulting from failure to do so shall be repaired or restored promptly by or at the expense of the Contractor.

5. The term "utilities" as used herein shall be construed to include all power, telephone, telegraph, gas, air and water lines existing on the site at the time of commencement of work under the contract. All necessary alterations to existing utilities will be made by their respective owners, except that abandoned utilities shall be removed by the Contractor. The Contractor shall cooperate in maintaining all utilities within the limits of construction operations and shall work in close coordination with the respective owners while required relocations of their utilities are being made. The Contractor shall request the removal of all utilities in the way of construction operations in writing to the Contracting Officer not less than 30 days prior to the date of desired removal. Where possible, utilities will be removed well in advance of construction operations. If, after the expiration of the 30-day required notice period, utilities to be relocated by their owners cause delays in the contract work, an extension of time for completion of the contract work will be granted equal to the extent of such delay, provided, that such extension shall not be a basis of a claim against the Government.

SC-20. *Damage to Work.* The Contractor shall be responsible for all work until completion and final acceptance thereof. However, if in the judgment of the Contracting Officer, any part of the permanent work, including the upstream cofferdam, performed by the Contractor is damaged by flood, which damage is not due to the clogging of the tunnel or trash beams, or the failure of the Contractor to take reasonable precautions or to exercise sound engineering and construction practices in the conduct of the work, additional payment for the repair of such damaged permanent work as ordered by the Contracting Officer will be made at the applicable contract unit or lump sum prices as fixed and established in the contract, which shall be full compensation therefor. If, in the opinion of the Contracting Officer, there are no contract unit or lump sum prices applicable to a part of such work, an equitable adjustment pursuant to Article 8 *Changes* of the contract will be made as full compensation for the repairs of that part of the permanent work for which there are no applicable contract unit or lump sum prices. Except as herein provided, damage to all work, (including temporary construction) utilities, materials, equipment and plant shall be repaired to the satisfaction of the Contracting Officer at the Contractor's expense, regardless of the cause of such damage.



SC-23. *Work Areas.* a. The grounds, easements, rights-of-way and other rights necessary in the opinion of the Contracting Officer for the work under this contract, including those needed for access roads, borrow pits and spoil banks, will be furnished by the State of New York through the Department of Public Works, and will be made available for the Contractor's use. The Government will not be responsible for any delay in furnishing the grounds, rights-of-way, easements, etc., but in case the furnishing of necessary rights-of-way causes delay in prosecution of the work of the Contractor, the Contracting Officer will grant an extension of time for the completion of the work equal to the time of such delay. It is expressly understood and agreed that such time extension shall not be the basis of a claim against the Government.

SC-24. *Unwatering Work Areas.* Unless otherwise specifically authorized, all permanent structures shall be constructed "in the dry." For this purpose the Contractor shall provide such cofferdams, diversion channels, drains (including drain tile and French drains), flumes or other temporary structures, and such pumps and other equipment as may be necessary for unwatering foundations and work areas not included within the scope of care and diversion of stream as specified in Section 1 of Part IV of these specifications. Such structures shall be subject to the approval of the Contracting Officer, but such approval will not relieve the Contractor of responsibility for the adequacy of the work. Upon completion of the work all such temporary structures shall be removed from the site. Under drains shall be plugged with concrete after serving the purpose for which intended. Separate payment will not be made for pumping, providing and removing any temporary protective works and equipment specified above, and plugging underdrains, but the cost thereof shall be included in the contract unit prices for the various items of the permanent work.

SC-27. *Cooperation With Other Agencies.* While work under this contract is in progress, construction of the permanent highway paving and new highway bridge and the relocation of the railroad track work will be carried on at the site by other agencies. All agencies engaged simultaneously on work at the site shall have equal rights to the use of such work and access areas

as may be necessary for the conduct of their respective operations. The Contractor shall conduct his operations so as not to unduly interfere with the operations of others working at the site. The Contractor will not be required to maintain the permanent highway paving, the new highway bridge or the railroad track work as such maintenance will be the responsibility of other agencies.

**SC-28. Final Examination and Acceptance.** As soon as practicable after the completion of the entire work or any divisible part thereof as may be designated in these specifications, a thorough examination thereof will be made by the Contracting Officer at the site of the work. If such work is found to comply fully with the requirements of the contract, it will be accepted; and final payment thereof will be made in accordance with Article 16 of the contract.

#### SECTION I. DIVERSION OF STREAM AND PROTECTION OF TRAFFIC

**TP1-01. General.** Work under this section shall consist of the care and diversion of the stream and the protection of highway and railroad traffic. The Contractor shall furnish all equipment, materials, and labor required to accomplish the above work, all as indicated on the drawings, specified herein, or directed by the Contracting Officer.

**TP1-02. Care and Diversion of Stream During Construction. a. General.** At all times prior to permanent diversion through the tunnel the Contractor shall maintain an unobstructed channel 150 feet wide, at valley floor elevation, between the end of the embankment slope and the opposite abutment. He shall be responsible for the safety of the work, and additional time other than that provided for in paragraph SC-1 will not be allowed for delays resulting from failure on the part of the Contractor to provide the necessary protection.

**b. Order of work.** Temporary and permanent diversion and control of the stream shall be accomplished as indicated on the drawings. Temporary protection shall be provided during construction of the outlet works. All other temporary protective works and temporary diversion shall be completed prior to diversion of highway traffic. Permanent diversion through the outlet works shall be made only upon written instructions from the Contracting Officer (see subparagraph TP6-01d) and when the following minimum items of work have been completed.

(1) Outlet works to elevation 1265, including the tunnel, approach and outlet channels complete, and all riprap around the intake structure.

(2) The railroad relocation and protection and highway relocation complete; the dam south of the existing highway to elevation 1320, and remainder of the dam embankment, except the closure section, to elevation 1300.

(3) All other pertinent work that may be directed by the Contracting Officer. By the time the closure section has been completed to elevation 1300, the spillway approach channel excavation shall be completed to elevation 1294 and the remainder of the spillway excavation shall be completed. All concrete in the spillway, except monoliths 4 to 11 inclusive of the weir, shall be completed by the time the closure section of the dam embankment has been constructed to elevation 1310. Monoliths 4 to 11 inclusive of the weir shall not be constructed above elevation 1294 until the closure section of the embankment has been constructed to elevation 1310. All other work shall be completed during the season in which the embankment closure section is completed.

*c. Temporary Diversion.* (1) *Stream Channel.* The relocated channel for temporary diversion of the stream shall be constructed to the lines, grades, and cross sections as shown on the drawings. Materials from this excavation shall be temporarily stock piled in the protection levee as specified in subparagraph (2) below and later removed and disposed of as directed.

(2) *Temporary Protective Works.* A temporary protection levee shall be constructed upstream from the main embankment as indicated on Sheet No. 16 of the drawings. Final location and extent of this levee shall be submitted by the Contractor for approval of the Contracting Officer. The protection levee shall be constructed of channel excavation materials and will require no special compaction. The Contractor shall provide for the protection of the outlet works effective to elevation 1245 upstream and 1230 downstream by leaving unexcavated such portions of the approach and outlet channels as will provide the necessary protection or otherwise protect the outlet works. If access openings are made in the protective works, the Contractor shall have on the site sufficient sandbags to close the openings. The Contractor shall be fully responsible for the adequacy of the protective works except as provided in subparagraph SC-20, and any damage resulting from

failure of such works shall be repaired or replaced at the Contractor's expense. Clearances between the protective works and permanent structures shall be sufficient to permit unwatering and provide sufficient working area to accomplish the construction work. At the time of permanent diversion the protective works shall be removed in accordance with subparagraph TP1-03d following,

*d. Permanent Diversion.* (1) *General.* When the items of work specified in subparagraph TP1-02b have been completed and upon written instructions from the Contracting Officer, the Contractor shall make permanent diversion of the stream.

(2) *Procedure.* (a) *Removal of Temporary Protective Works.* The temporary protective works shall be removed to the lines and grades as shown on the drawings or as directed by the Contracting Officer. Suitable materials from the temporary protective works shall be used in the permanent structures. All other materials shall be disposed of as directed.

(b) *Upstream Cofferdam.* After filling with waste materials the temporary diversion channel downstream from its junction with the approach channel to the outlet works and constructing the permanent blanket on the end of the dam embankment as specified below, the Contractor shall construct the upstream cofferdam to elevation 1265 at the location and to the lines and grades shown on Sheet No. 16 of the drawings. It shall be constructed of select pervious material, placed and compacted in accordance with the applicable provisions of paragraph TP6-03, and covered on the upstream face with a temporary blanket 5 feet in thickness consisting of sand and impervious materials as indicated on the drawings. Prior to construction of the cofferdam, the Contractor shall construct a permanent blanket on the end of the dam embankment, extending from the impervious section to the upstream face of the dam and up to elevation 1265. The permanent blanket shall be similar to the temporary cofferdam blanket specified above, with the impervious material placed adjacent to the embankment. This permanent blanket and the upstream cofferdam will remain as part of the permanent structure. The temporary cofferdam blanket shall be removed in accordance with subparagraph TP1-02e.

*e. Removal of Cofferdam Blanket.* After the embankment closure section has been completed above elevation 1265, the Contractor shall remove the temporary cofferdam blanket above the elevation of the adjacent

spoil berm to the slope lines of the upstream cofferdam. The material removed shall be disposed of in the embankment or as otherwise directed. Select pervious materials excavated from within the finished slope lines shall be replaced with approved materials at the Contractor's expense.

TP1-03. *Protection of Highway Traffic.* a. *Highway 36.* The Contractor shall maintain and protect two-way traffic on the existing highway through the work area until the completion of the highway relocation and completion of the new Canacadea Creek bridge which will be constructed under a separate contract. When specifically authorized by the Contracting Officer, the Contractor shall construct the temporary detour at the east end of the highway relocation, close the existing highway, and direct traffic over the relocation. All measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the New York State Department of Public Works, Division of Highways.

TP1-04. *Protection of Railroad Traffic.* The Contractor shall notify the Contracting Officer not less than 15 days in advance of the date he desires to enter railroad property so that due notice may be given the owners. Upon approval by the Contracting Officer, the Contractor shall proceed with the work and continue without interruption, completing it in the shortest time possible. Work on and adjacent to railroad property shall be performed with extreme care and in such a manner that there will be no interruption of rail traffic. The Contractor shall furnish necessary flagmen and comply with all requirements of the railroad relative to his operations. In planning and prosecuting construction operations on railroad property, the Contractor shall work in close cooperation with the railroad, and shall submit details of his proposed method of operation for the approval of the railroad. On all work adjacent to the railroad the Contractor will be required to provide such temporary protection as may be deemed necessary by the railroad. The Contractor shall make arrangements with the railroad to pay all necessary costs of temporary protection including such costs as the expense of flagmen provided by the railroad.



### TP3-04. Borrow Excavation.

*b. Excavation Procedure.* (1) *General.* The Contracting Officer will control the execution of borrow excavation. He will direct the locations at which excavation shall be made, the depth of cuts and lifts, and the disposition of the excavated material in the several sections of the embankment. The Contractor will be required to change the location and depth of excavating operations whenever such change is necessary to obtain the proper quality of materials for the part of the embankment under construction. Excavation of materials for use in the construction of the embankment shall be conducted so as to segregate or to secure the desired mixtures of materials for the different classes of materials designated for use in the various parts of the work. Excavation shall be performed so that the materials for the full depth of lift are mixed in the process of excavation. The term "lift" as used herein means the full workable depth of the material which is as a whole suitable for one class of embankment material or which must be wasted. Stripping of the borrow areas shall consist of the excavation of the surface lift and shall be performed only in such areas and to such depths as may be directed. Borrow excavation shall include the clearing and grubbing of the designated areas actually worked, clearing of stockpile and spoil areas, maintaining satisfactory drainage, and the disposal of objectionable materials in designated spoil areas. Necessary clearing and grubbing operations may be prosecuted as the materials are being excavated provided the objectionable materials are separated from the suitable materials.

## SECTION VI. EMBANKMENT

TP6-01. *General. a. Definition.* The term embankment as used in these specifications is defined as the earth and rock fill portions of the dam, the railroad relocation and protection, the access road, the highway relocation and the levee at Borrow Area 3. For dumped riprap and rock in downstream toe trench see Section VIII.

*b. Classification of Materials.* Embankment materials are classified according to type, location, and method of placing as follows:



Type	Location	Placing
Impervious	Core section of dam and railroad protection and the upstream cofferdam blanket.	6" layers—compacted
Transition	Between impervious and select pervious sections of the dam and railroad protection below Station 130+00.	6" layers—compacted
Random	Highway relocation downstream from approximate Station 115+00, access road and temporary detours at each end of the highway relocation.	24" layers—uncompacted
Random	Between impervious and previous sections of the dam, in the levee at Borrow Area 3 and in the railroad relocation.	12" layers—compacted
Random	Highway relocation between approximate Station 115+00 and Station 133+00 and upstream from Station 146+00.	8" layers—compacted
Select Pervious	Shell section on the reservoir side of the dam and railroad protection below Station 136+75, and highway relocation between Stations 136+75 and 146+00.	12" layers—compacted
Pervious	Downstream section of the dam and railroad protection below Station 130+00.	12" layers—compacted
Pervious	Central section of the highway relocation between Stations 136+75 and 146+00.	8" layers—compacted.

*c. Scope of Work.* The Contractor shall spread and consolidate the materials required for the embankments to the elevations, lines, grades and cross sections indicated on the drawings or as established by the Contracting Officer.

*d. Order of Work.* The Contractor shall construct the embankment in sections as indicated on the drawings and as specified below (see also subparagraph TP1-026);

(1) The embankment for the railroad protection, the highway relocation and the dam embankment on the south side of the existing highway, within the limits shown on the drawings, shall be completed to top elevation prior to diversion of highway traffic.

(2) The dam embankment between the section specified in (1) above and the closure section shall be completed to elevation 1300 prior to permanent diversion and construction of the closure section. In lieu of stockpiling excess embankment materials, the Contractor may place such materials between the existing highway and the closure section prior to diversion of highway traffic as directed or approved by the Contracting Officer.

(3) After permanent diversion, the closure section of the dam embankment shall be constructed to elevation 1300. The closure section and the section specified in subparagraph (2) above shall then be constructed to elevation 1320 in such a manner as to permit construction of the entire length of uncompleted embankment in one operation. During such construction the portion of embankment adjacent to the left abutment shall be kept approximately 2 feet lower than the remainder of the embankment by sloping the embankment along the axis of the dam as shown on the drawings or as directed by the Contracting Officer. The embankment shall be completed during the second working season. The Contractor will be required to show to the satisfaction of the Contracting Officer that there is sufficient equipment on the work to complete the closure section and all other portions of the dam embankment to elevation 1320 during the second working season before authority will be given to make permanent diversion.

*c. Source of Materials.* Materials for embankment shall be obtained from required excavations and borrow areas as directed by the Contracting Officer. In general it is anticipated that the sources of embankment materials will be in accordance with the provisions of subparagraph TP3-015, but the right is reserved to obtain such materials from any source and in any quantity as may be desired. The disposition of the materials from any source will be determined according to the suitability and classification of the materials. Materials from three origins may be required to be used at the same time in the same part of the embankment, or materials from any one source may be required to be used in different parts of the work.

**TP6-02. Embankment Construction.**

*c. Placing and Spreading of Materials.* Embankment material shall be deposited in areas of the embankment as directed or approved by the Contracting Officer. The excavation and embankment placing operations shall be combined as directed by the Contracting Officer so that the material when compacted will be blended sufficiently to secure the best practicable degree of compaction and stability. In general, impervious fill material will be used for the core trench, inspection trench, and the central part of the embankment grading to more pervious material on the outer slopes. The distribution and gradation of materials shall be such that the embankment will be free from lenses, pockets, streaks, or layers of material differing substantially in texture or gradation from the surrounding materials. When two or more classes of materials are being placed in a section of the embankment they shall be systematically spotted, dumped, and bulldozed so that in any area of the section there are approximately the correct proportions of the required materials. After dumping the materials in the embankment the various classifications of embankment materials shall be bulldozed or otherwise spread in layers of the applicable thickness specified in subparagraph TP6-01b. During the dumping and spreading operations the Contractor shall remove all brush, roots, sod, and other unsuitable materials as determined by the Contracting Officer, and dispose of them in accordance with subparagraph TP2-01a. Stones having a thickness greater than the permissible thickness of the spread layer or a surface area which would cause interference with the compaction of the embankment material, if suitable for dumped riprap or rock in the downstream toe trench shall be placed in those sections of the permanent work and if unsuitable for the above uses, shall be broken up and scattered in the embankment to the satisfaction of the Contracting Officer or wasted as directed. No embankment material shall be placed on or against frozen surfaces nor shall frozen materials be placed in the embankment. When specifically directed by the Contracting Officer, the Contractor shall stock pile frozen materials for later use in the embankment. The use of shale will not be permitted in any of the permanent embankments, except that embankments for the highway relocation downstream from approximate Station 115+00, the access road, and the temporary detour at each end of the highway reloca-

tion, shall be constructed predominately of shale and other waste rock with a binder of spoil common materials. Nesting of rocks will not be permitted and the amount of binder shall be sufficient to fill all voids between the rocks. In the said highway relocation and access road embankments, stones larger than 2 cubic feet in volume shall not project within 2 feet of the fine grade and large stones shall not project within 6 inches of the side slope lines.

*e. Moisture Control.* The embankment materials, before rolling, shall have the proper water content required for compaction as determined by the Contracting Officer. The Contractor may be required to wet the surface of the preceding compacted layer, the dumped material before spreading, or the spread uncompacted layer before rolling. Harrowing or mixing the spread material may be required whenever necessary, in the opinion of the Contracting Officer, to secure a uniform moisture content. The moisture content shall be so regulated as to obtain the amount essential to required compaction. Should the material be too wet to permit proper compaction by rolling, the rolling and work on all portions of the embankment thus affected shall be delayed until the material has dried to the required consistency. If additional moisture is required, it shall be added by any means proposed by the Contractor and approved by the Contracting Officer.

13. The Almond Dam, as constructed, is an earthen flood control dam having three principal features common to such dams, (1) a main dam consisting of an embankment constructed of compacted earthen materials; (2) an outlet works for control of the reservoir, and (3) a spillway constructed at an elevation lower than the dam, to drain off excess water in the event of flood conditions.

The main dam is constructed to elevation 1320 feet. Connected to it and extending upstream on the right abutment<sup>1</sup> is a supplemental extension or "arm" for the protection of a relocated railroad and a state highway formerly located within the dam site which were contained, in part, in cut below the top elevation of the dam. Paralleling the axis of the dam a core trench, the purpose of which was to prevent seepage of water under the embankment, was excavated to below

<sup>1</sup> In accordance with established engineering practice, when references are made to "right" or "left" it is assumed that one is facing downstream.

the dam foundation extending from abutment to abutment. The core trench was filled with impervious material and compacted to the elevation of the foundation. The embankment was then constructed on top of the core trench. Necessarily, the core trench had to be completed before the placement of materials to any extent could proceed in the area of the foundation immediately above the trench.

The outlet works, constructed in the left abutment of the dam, is composed of three principal features, (1) a concrete intake and operating house which contains the gates and machinery for controlling the flow through the outlet works; (2) a horseshoe-shaped concrete lined tunnel 710 feet in length, drilled through the rock of the left abutment; (3) a downstream stilling basin from which the flow through the tunnel returns to the natural stream bed below the dam. At the time of permanent diversion of the creek during the construction period a permanent approach channel was excavated in the reservoir area above the dam to direct the normal water flow into the outlet works.

The spillway was excavated in open cut into rock in a saddle to the left of the outlet works, the intake thereto being excavated in rock down to elevation 1,294 feet. Immediately adjacent to and downstream of the intake is a concrete weir constructed across the spillway at crest elevation 1,300 feet, 20 feet lower than the crest elevation of the dam. The only purpose of the spillway is to serve as a "safety valve" to protect the dam from washout in the event of unusual flood conditions.

14. In the course of construction there were certain features in the sequence of operations peculiar to Almond Dam which are pertinent to the consideration of damages in this case:

(a) To construct the dam embankment it was necessary to relocate a branch line of the Erie Railroad passing along the intended site of the right abutment of the dam. Under the contract the plaintiff was required to excavate for and prepare a new subgrade for the railroad by cutting back into the right abutment. The actual work of track relocation was performed under a separate agreement between the Government and the railroad.

(b) New York State Highway No. 36 passed through the valley generally parallel to Canacadea Creek and bisected the location of the proposed dam approximately at its center. Under its contract plaintiff was required to relocate and construct a new highway in the right abutment of the dam in close proximity to the relocated railroad. The site of the new highway relocation occupied, in part, the old bed of the relocated railroad tracks. The final surfacing of the new highway and the construction of a new bridge across Canacadea Creek were performed under a separate agreement between the United States and the State of New York after plaintiff had completed its highway work. It was a requirement of plaintiff's contract that traffic over existing Highway 36 be maintained until the new highway was completed and opened to traffic.

A telegraph line along the old railroad bed had to be relocated by others along the relocated railroad bed. A telegraph line and an 8-inch gas main along old Highway 36 also had to be removed by others.

15. In accordance with the plans and specifications as set forth in finding 12, the various portions of the dam relating to the instant claim for damages were required to be constructed in the following order:

(1) A new subgrade for the existing railroad line was to be excavated by cutting back into the right abutment.

(2) Simultaneously with the construction of the new railroad cut, the dam embankment south of existing Highway 36 was to be built up to elevation 1320.

(3) The roadbed for the relocation of State Highway No. 36, part of which was located on the site of the old railroad line, was then to be constructed.

(4) Immediately upon completion of the new highway, traffic was to be diverted thereon and old Highway 36 closed.

(5) It was then required that Canacadea Creek be temporarily diverted in order to permit cleaning out of the upstream bed within the foundation area of the dam.

(6) Having diverted the traffic and temporarily diverted the stream it was then required that the dam embankment north of and including the old highway to the point of closure, be built up to elevation 1300 except for the closure section.



(7) The creek was then to be permanently diverted through the completed diversion tunnel at which point work could commence in the closure section of the dam.

(8) The permanent cofferdam upstream of the closure section of the dam was then to be built up to elevation 1265.

(9) The closure section itself was then to be built up to elevation 1300.

(10) Concurrently with the building up of the closure section to elevation 1300 the spillway approach channel was to be excavated down to elevation 1294. The reason for the requirement that these two operations be concurrent was to provide for a minimum hazard during this phase of construction. By keeping the spillway elevation below the embankment elevation as required a place was provided in the nature of a safety valve, where flood water would drain off before reaching the main embankment. As a further safety factor, it was required that the level of the closure section be kept two feet below the level of the main embankment until completion thereof.

16. The specific sequence of operations for the construction of the dam as set out in finding 15 were so coordinated for a definite purpose. Primarily the prerequisites to stream diversion were set out so as to minimize the effect of possible heavy flood conditions occurring during construction and to prevent destruction of the partially completed dam, with the resultant risk to life and damage to property which could occur in areas downstream of the work.

Secondly, the required sequence of operations provided partial insurance to the Government and to the contractor from financial loss had a flood occurred during construction which could top that much of the embankment constructed to date and result in a washout of the entire dam.

The outlet works was not designed to carry off the flow of the stream during periods of flood. High waters in the Canacadea Creek watershed could be expected normally in the spring and fall months. However, the hydrographs which are a part of the contract plans, show that peak flood conditions could be expected during other seasons of the year. The highest flood condition recorded was during the month of July 1935 when the run-off was 22,000 cubic feet per second. This was about four times as great a volume as oc-

curred during any other period of flooding during the period 1925-1941. It was to protect against such an un hoped for contingency that a heavy flood might occur during the period of construction which caused the Government engineers who designed the dam, and those who prepared the specifications, to spell out the phases of construction which would be required before the stream could be diverted. In periods when there had been no heavy rains in the upstream watersheds, the stream was very small but there were two or three instances during construction when high water interfered with the work. It can be seen then why it was so important that the work of the railroad relocation and highway relocation, and the embankment along them, plus placement of embankment of more than half of the main dam, were required before the stream could be permanently diverted through the tunnel.

17. The plaintiff's witnesses have testified that if the plaintiff had not been delayed by the Government in connection with tunnel supports, it could have diverted the stream through the tunnel about a year earlier than it did so and that it could have finished all remaining embankment in the 1947 work season. This testimony is not convincing for three reasons. First, this would have required a major change in the specifications as to how much work should be finished before permanent stream diversion with the chance of great damage to embankment operations in event of heavy flooding as the tunnel was only designed to carry a flow of 4,000 cubic feet per second with the water at an elevation of 1,265 feet. The finished dam was at 1,320 feet elevation with the crest of the spillway having an elevation of 1,300 feet. Secondly, there was State Highway 36 crossing the main dam area about in the center and it would have been necessary to depart from the specification as to the movement of highway traffic during construction. It is true that this traffic was detoured around the work area from May to September of 1948, but if the stream had been diverted in 1947, it would have made this detour extend for a period of about a year and one half, instead of from May 1948 to September 1948. In this connection very great concern was indicated by the state and county road authorities because Highway 36 carried 5,000 vehicles over a 12-hour period

each day, 1,000 of which were trucks; and these vehicles, during the detour, had to pass over a railroad grade crossing. Thirdly, the volume of excavation and actual placement of embankment, as indicated in the plaintiff's payment estimates, clearly shows that it would not have completed all embankment in the 1947 work season.

18. Although it was important to the progress of the work from an overall standpoint to coordinate construction of the dam embankment and the spillway excavation with construction of the outlet works, which included construction of the diversion tunnel, so as not to delay diversion of the stream, the progress of construction of the dam and spillway could have proceeded to a considerable extent independently of, and without interference by, outlet works construction. The outlet works were physically outside the area of dam embankment and spillway operations. The equipment used in outlet works construction consisted of the concrete plant and related items, whereas dam and spillway construction, prior to diversion, employed earth-moving and compacting equipment such as scrapers, shovels, trucks, sheepfoot rollers, bulldozers, etc.

As hereinbefore shown, in accordance with the plans and specifications, before stream diversion could be accomplished, the contractor was required to be at a stage of construction, where the railroad had been relocated, the highway, in part, relocated on the site of the old railroad bed and traffic diverted thereon, the embankment south of old State Highway 36 built up to elevation 1320, and the embankment north thereof built up to elevation 1300 up to the closure section. The outlet works, therefore, need not have been ready for stream diversion until the aforementioned steps, with respect to the progress of construction of the main embankment, had been reached.

Dam embankment construction on the other hand was related to spillway excavation in that all suitable common materials excavated in the spillway were required to be utilized for placement in the dam embankment.

19. At the commencement of the work, in August 1946, plaintiff submitted a progress schedule of work operations as required by the contract. Pertinent features of the work were scheduled thereon as follows:

	<i>Schedule completion</i>
3—Stripping and common excavation:	
a. Railroad subgrade.....	May 31, 1947
c. Spillway.....	Nov. 15, 1947
4—Rock excavation:	
a. Railroad subgrade.....	June 30, 1947
c. Spillway.....	June 30, 1948
5—Tunnel:	
b. Concreting.....	Aug. 31, 1947
7—Embankment.....	Nov. 15, 1948
9—Concrete:	
b. Intake and Stilling Basin.....	Nov. 15, 1947
Highway No. 36 closed.....	Apr. 30, 1948
Permanent stream diversion.....	Aug. 15, 1948
Job as a whole.....	Jan. 15, 1949

The progress schedule made no reference to the time of temporary stream diversion provided for under the contract. At no time during construction did the plaintiff, by writing or otherwise, indicate to defendant's agents that it intended to divert the stream through the completed tunnel earlier than August 15, 1948.

20. During the course of construction several key delays affected the time when the dam embankment was finally built up to the point where stream diversion was permitted under the contract.

The plaintiff was dilatory in completing the railroad relocation and subgrade which were scheduled for completion on June 30, 1947. This was not substantially completed until October 9, 1947, at which time, because of the possibility of freezing conditions that late in the year, the Erie Railroad officials refused to relocate its tracks. This work was not completed by the railroad until October 1948.

The delay in railroad relocation in turn delayed relocation of State Highway 36, part of which was to be on the old railroad bed. The highway relocation scheduled for April 30, 1948 was not completed and opened to traffic until October 13, 1948.

Until Highway 36 was relocated plaintiff could perform dam embankment operations north of old Highway 36 to a limited extent only. Construction operations in that area were restricted by the specification requirements that State Highway 36, which bisected the dam foundation, remain open to traffic, and that closure section, 150 feet in width at

the bottom, in the bed of Canacadea Creek, remain open until such time as diversion of the creek could be accomplished.

South of Highway 36 embankment operations proceeded in the summer and fall of 1947. However, during the spring and early summer of 1947 very little embankment placement was performed due to poor weather conditions. Plaintiff later received an extension of time therefor.

21. Realizing that its failure to timely relocate the state highway would result in delay of further embankment operations plaintiff, in the spring of 1948, took action to break this bottleneck.

By agreement with the Superintendent of Highways, Steuben County, New York, which agreement was approved by the contracting officer and the New York State Department of Public Works, plaintiff was permitted to detour the traffic from existing Highway 36 via an alternate route over a county road known as Webb's Crossing Road. The detour was made effective May 28, 1948. Following the elimination of highway traffic through the dam site, embankment operations proceeded expeditiously.

In the meantime concreting of the tunnel had been completed by May 8, 1948 and sufficient concrete work had also been completed on the intake works, operating house and stilling basin so that by August 14, 1948, when the embankment had been sufficiently built up to the required elevation, the stream was diverted through the outlet works. Construction of the closure section of the dam commenced immediately thereafter.

Permanent diversion of the stream was thus accomplished almost to the day anticipated by the plaintiff on its original progress schedule. (See finding 19.)

22. It is clear that the work of concreting in the tunnel and also in the inlet works and outlet works was seriously disrupted by the failure to authorize the installation of tunnel supports earlier than the letter of authorization dated August 11, 1947 which was received by the plaintiff about August 14, 1947. The plaintiff in the exercise of sound judgment had engaged the services of numerous independent qualified engineers for consultation as to what might be required in the way of support for the tunnel. It acted on

the advice of such engineers, and about three weeks before authority had been given to install the steel arch ribs and liner plates in the tunnel, on July 25, 1947, placed its order for the steel.

23. The plaintiff, on August 15, 1947, promptly began the installation of the tunnel supports upon receipt of the steel and they were installed by October 8, 1947. The space above the liner plates had to be filled with backpacking, rock and boulders which could be handled by one man crawling between the liner plates and the overhead in the rock tunnel. The backpacking operation was finished in October 18, 1947.

24. Since the delay incident to authorizing the tunnel supports required concreting operations in winter weather, it then became necessary to winterize the concrete plant and this was accomplished by the plaintiff. Concreting operations in the tunnel commenced on December 15, 1947 and continued until May 8, 1948. Concreting operations began in the intake area sometime after July 25, 1947 but this work could not move along expeditiously since the installation of the tunnel supports and backpacking interfered. The original plan of work operations submitted by the plaintiff called for the concreting of the intake and stilling basin from early July 1947 to the close of the 1947 work season. These two items were the inlet works on one end of the tunnel and the outlet works and stilling basin at the downstream end of the tunnel.

25. The original plan of operation called for the plaintiff to do the concreting of the spillway from April 15 to October 31, 1947. It should be noted that the location of the spillway was several hundred feet north of and generally parallel to the area of the stilling basin.

26. Subsequent to March 25, 1947, when the initial work of cleaning up the floor of the tunnel had been accomplished, after the tunnel had been holed through, there were additional falls of rock from the roof of the tunnel and the sides. As a result, before placing concrete lining, it was necessary to rescale both the sides and roof of the tunnel, pick up and load and haul out the rock that had fallen from the roof and sides, also reclean the invert of the tunnel. This work was performed from August 23, 1947 to October 18, 1947.



Plaintiff's extra costs of performing this work were as follows:

Direct labor, plus insurance, taxes and overhead-----	\$1,187.48
Field supervisory labor, plus insurance, taxes and overhead-----	121.81
Cost of materials and other expenses, plus overhead-----	3.26
Sublet work: Paid to subcontractor, plus overhead-----	4,620.53
Hired equipment: Paid to equipment owners, plus overhead-----	1,415.42
Use of owned equipment: At 1947 AED Manual rental rates less 15% profit-----	1,003.58
<b>Total: Claim Item 2-----</b>	<b>\$8,442.08</b>

27. The plaintiff received official authorization from the defendant to install the steel arch ribs with liner plates in the Almond Tunnel, but at its own expense, by letter from the Acting District Engineer dated August 11, 1947. Plaintiff, however, ordered steel ribs and liner plates from the manufacturer on July 25, 1947, which was as soon as plaintiff knew the size of adequate supports which had to be installed before concrete lining of the tunnel could proceed. By that time plaintiff had been advised by its engineering consultants, and the Liberty Mutual Insurance Company, that the design of tunnel protection recommended by the contracting officer was inadequate.

The plaintiff installed permanent tunnel supports in the central 610-foot portion of the Almond Tunnel in the form of steel arch ribs and liner plates, performing such installation between mid-August and mid-October 1947. This installation was exclusive of the two 50-foot ends for which the plaintiff was compensated.

28. The plaintiff's extra costs for the labor, materials, and equipment used in the installation of the permanent tunnel supports installed were as follows:

Direct labor, plus insurance, taxes and overhead-----	\$1,190.33
Field supervisory labor, plus insurance, taxes and overhead-----	134.92
Cost of materials and other expenses, plus overhead-----	23,228.86
Sublet work: Paid to subcontractor, plus overhead-----	5,550.65
Use of owned equipment, application of 1947 AED rental rates, less 15% profit factor-----	1,143.98
	<b>\$31,248.69</b>

Less taxes, insurance and overhead.....	\$3,447.90
	<hr/>
	\$27,800.79
Plus 15% profit.....	4,170.12
	<hr/>
	\$31,970.91
Plus taxes, insurance and overhead.....	3,447.90
	<hr/>
	\$35,418.81

29. As a result of the overbreak of rock in the Almond Tunnel there remained a space between the bore of the tunnel and the liner plates installed. The entire area between the liner plates and the roof and the sides of the tunnel required backpacking with material which would prevent the further fall of rock and properly support the roof. This area requiring backpacking was beyond the 50 feet of the inlet and outlet portals of the tunnel. The contract did not require backpacking where permanent supports were not required. Below the liner plates the concrete extended out to the bore of the tunnel and on the invert the entire area was filled with concrete. Above the spring line and where the liner plates were placed there was no concrete placed outside the plates. The backpacking of fragments of stone was packed in tightly and later, after the installation of the concrete lining of the tunnel, the plaintiff pumped sand into the area to fill the voids between the stone following which grout was pumped into the area under low pressure to make the area solid. The stone backpacking was installed during the weeks ending August 30, 1947, through October 18, 1947. The sand backpacking was installed during the weeks ending May 15, 1948 through July 3, 1948.

30. The grouting which was performed subsequent to the sand backpacking was the pumping into a given volume of material of cement and water or sometimes cement, sand and water to solidify the mass, to fill in the voids between the particles. If the changed conditions resulting in the fall from the roof of the tunnel had not occurred grouting would not have been necessary and it was not a pay item in the original contract but an extra cost to the plaintiff.

31. As the steel ribs were erected in the tunnel, the plaintiff's engineers took cross sections of the tunnel at least every ten feet to determine the aperture of the whole tunnel so that

it could be drawn on cross sections. From the information gained in this survey and computations by the plaintiff's engineers, from the engineering information and the contract specifications, the volume remaining between the liner plates and the roof of the tunnel was computed and tabulations made of the total volume in cubic yards between the points 50 feet in from each end of the tunnel. Thus, determination was made of the actual volume of space above the liner plates to the roof of the tunnel in the 610 feet where the additional steel ribs were installed. This volume of space that required backpacking and grouting amounted to 14,553 cubic feet. The plaintiff's engineering staff determined the percentage of voids which was the space not solidly filled by either stone or sand in backpacking that had to be filled with grout. The percentage was determined by acceptable standard engineering practices and observation to be 40 percent of the volume of the whole backpacked area between the liner plates and the roof of the tunnel. The cost of the grouting was determined by applying to 40 percent of the volume of the whole backpacked area the contract price of \$2.50 per cubic foot, less 15 percent for a profit factor on that item.

**32. Plaintiff's extra costs of backpacking and low pressure grouting totaling \$29,332.92 were as follows:**

**Stone Backpacking:**

Direct labor, plus insurance, taxes and overhead.....	\$595.79
Field supervisory labor, plus insurance, taxes and overhead.....	58.47
Cost of materials, etc., plus overhead.....	1,990.80
Sublet work: Paid to subcontractor, plus overhead...	3,890.52
Use of owned equipment: At 1947 AED rental rates, less 15% profit factor.....	734.68

**Sand Backpacking:**

Direct labor, plus insurance, taxes and overhead.....	5,669.39
Field supervisory labor, plus insurance, taxes and overhead.....	428.06
Cost of materials, etc., plus overhead.....	2,222.95
Owned equipment: At 1947 AED rental rates, less 15% profit factor.....	1,382.81

**Low Pressure Grouting—14,553 cu. ft. × 40% (Voids)  
× \$2.125 per cu. ft.-----**

**\$29,332.92**

Less taxes, insurance and overhead.....	\$2,008. 11
	<hr/>
	\$27, 329. 81
Plus 15% profit .....	4, 069. 47
	<hr/>
	\$31, 429. 28
Plus taxes, insurance and overhead.....	2, 008. 11
	<hr/>
	\$33, 432. 39

33. The plaintiff placed additional concrete in the tunnel. This concrete was placed in the tunnel outside the pay lines established by the Government which was over and above the volume of concrete paid for by the defendant to the pay lines. The ultimate bore of the tunnel was larger in all its points throughout its complete circumference than the position of the pay line. It was applied on the floor, or the invert of the tunnel and on the sides and in the roof. The area above the spring line where the steel supports and liner plates were installed limited the volume of concrete placed to the liner plate position but below the liner plates, on the sides and on the invert of the tunnel, the plaintiff filled the entire space between the tunnel forms and the existing rock surface with concrete. Payment was made only to certain specified pay lines. The concrete placed beyond the specified pay lines has not been paid for by the Government.

The quantity of the excess concrete was computed as to volume by the plaintiff's engineers computing the volume of the tunnel bore within the central 610-foot section as it existed at the time of concrete lining. The plaintiff submitted in the record as Exhibit 81 a document entitled "Summary Tunnel Volumes". The computations show the difference between the cubic yards of tunnel concrete paid for by defendant and the amount actually placed, the difference being 644.61 cubic yards as a result of the changed conditions.

34. Plaintiff's extra costs of placing the additional concrete were as follows:

	Cu. yds.
Computed volume of concrete placed in tunnel.....	3, 020. 31
Less volume of tunnel concrete paid to plaintiff by United States Engineer office on Estimate #36—final.....	2, 375. 70
	<hr/>
Additional concrete placed in tunnel.....	644. 61

644.61 cu. yds. at the contract price of \$25.90 per cu. yd. = \$16,115.25—  
total claim including profit on Item 5.

35. The plaintiff's original schedule of operations did not provide for winter concreting. The fact that permanent tunnel protection in the form of steel ribs and liner plates was not authorized earlier delayed the completion of the installation of the steel ribs and liner plates. It was apparent to plaintiff that the concrete would have to be poured in cold weather and plaintiff made provisions for that work. The plaintiff was required to, and did build a house to enclose its pumpcrete machine, install a boiler for pre-heating the water going into the concrete, enclose the batching plant and the cement plant and install steam boilers and pipes to protect and heat the materials in the bins and the stockpiles before they were incorporated in the concrete. This preparatory work was done between mid-October and December 15, 1947. Plaintiff's work in carrying out the heating of the concrete before placement and subsequent to placement due to the fact that plaintiff had to place concrete in subfreezing weather continued through the week ending April 24, 1948. Plaintiff commenced the concreting of the Almond Tunnel on December 15, 1947, and completed it on May 8, 1948.

36. Plaintiff's extra costs to prepare for and handle heat for winter concreting were as follows:

Direct labor and supervisory labor, taxes, insurance and overhead .....	\$26,008.45
Cost of materials and other expenses plus overhead .....	6,683.08
Use of owned equipment: At 1947 AED rental rates, less 15% profit factor .....	4,487.76
Total claim Item 6 .....	\$37,180.29

37. As a result of concreting the tunnel, including the inside of the tunnel and the inlet area, during winter months the plaintiff suffered a loss of efficiency and as a consequence incurred extra costs. The loss of efficiency was attributable to men and machines not producing as much in winter or subfreezing weather as would be produced during favorable weather, to equipment freezing and being difficult to start, to the fact that the equipment had to be shut down earlier in cold weather in order to clean and protect it for cold

nights, and to the fact that carpenters erecting forms had to work with gloves thus impeding their activity. On the basis of an eight hour day the plaintiff would get only five hours of work out of the equipment and employees engaged in the winter concreting operation.

Plaintiff estimated that there was a loss in efficiency of 25 percent in its labor force and its equipment and everything else which went into the cost of handling concrete in the winter time. This estimate was based upon the experience of plaintiff's engineers in carrying on concrete placement operations during the particular winter season. This estimate of loss of efficiency was corroborated by Mr. Miles Clair, a consulting engineer with extensive experience with respect to concreting, who was former chairman of the American Concrete Institute Committee on Winter Concreting.

Winter weather concrete operation at a location such as Almond Dam, as compared with concreting in favorable weather, reduces efficiency 25 percent below normal efficiency.

38. The plaintiff computed its cost due to the loss of efficiency in winter concreting by applying a 25 percent loss of efficiency to plaintiff's cost of concrete which was 85 percent of plaintiff's bid price of \$25.00 a cubic yard or \$21.25, thus arriving at a figure of \$5.3125 (25 percent of \$21.25) a cubic yard as a factor, and then applied this figure to the number of cubic yards that were poured during the period December 15, 1947 to April 13, 1948.

The extra costs plaintiff incurred by reason of loss of efficiency in winter concreting were as follows:

	Cu. yds.
Total concrete placed during period December 12, 1947 through April 13, 1948.....	2,964.6
Less concrete placed in Erie Railroad culvert during period.....	15.0

Concrete placed during period in connection with tunnel..... 2,969.6  
 2,969.6 cu. yd. at \$5.3125 per cu. yd. = \$15,776.00, total claim Item 7.

39. The plaintiff paid for the services of the consulting engineers who examined the tunnel to determine the need for permanent tunnel protection. The amount paid was \$2,820.47. The consulting engineers employed by the plaintiff to advise on tunnel supports as being required were



Messrs. J. Murray Ridell, James G. Tripp, and Miles N. Clair, all engineering consultants. The plaintiff's costs were based upon the invoices submitted by the engineering consultants. The charges were reasonable. Adding 15 percent profit to this amount results in a figure of \$3,243.54.

40. Items of claims Nos. 2 through 7 inclusive, and item 16, totaling \$149,617.36, are reasonably related to the costs of installing the tunnel supports and also the delay incident thereto as well as the disruption to the balance of the contract work. Other items claimed by the plaintiff bore no reasonable relation to the matter of failure to order installation of tunnel supports earlier.

#### CONCLUSION OF LAW

Upon the foregoing findings of fact, which are made a part of the judgment herein, the court concludes as a matter of law that plaintiff is entitled to recover, and it is therefore adjudged and ordered that plaintiff recover of and from the United States the sum of one hundred forty-nine thousand six hundred seventeen dollars and thirty-six cents (\$149,617.36).

## APPENDIX C

### UNITED STATES COURT OF APPEALS

#### FOR THE SECOND CIRCUIT

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No. 202—September Term, 1961.

(Argued February 6, 1962      Decided August 29, 1962.)

Docket No. 27236

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ALLIED PAINT & COLOR WORKS, INC.,

*Plaintiff-Appellant,*

—v.—

UNITED STATES OF AMERICA,

*Defendant Appellee.*

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Before:

LUMBARD, *Chief Judge*, and  
SWAN and WATERMAN, *Circuit Judges.*

WATERMAN, Circuit Judge:

Appellant, a paint contractor, brought the present action against the United States in the U. S. District Court for the Southern District of New York for breach of contract, alleging that the Government failed to deliver a certain quantity of phosphorescent paint which it was the Government's duty to furnish under the contract. This is an appeal from the order of the district court dismissing appellant's complaint. We affirm the court below.

On June 20, 1952, following an invitation to bid, appellant and the Government entered into contract No. N383s-77428 (hereinafter referred to as contract No. 1), under which appellant agreed to furnish the Government 7,644 paint kits to be delivered to various government depots within 90 days after the date of the contract. Each kit was to contain a quart can of phosphorescent paint, which was called component "A," a quart can of white primer, a quart can of thinner, and a quart can of varnish. The contract expressly provided that the 7,644 quarts of phosphorescent paint, totalling 1,911 gallons, were to be Government-furnished, and the Government was to deliver them in one gallon cans to appellant's plant within 30 days from the contract date.

Contract No. 1 then provided that upon request by appellant the dates for appellant's performance would be extended if the Government delayed in supplying the Government-furnished property, and though the Government would

not be liable for delays in the delivery of the phosphorescent paint or for failure to deliver, an equitable adjustment in the performance date or the price would be made upon the written request of the contractor. The contract also provided that the Government could increase or decrease the amount of property it was to furnish, and in such event, there was provision for price or date adjustments. Although title to the phosphorescent paint remained in the Government, appellant agreed to assume the risk of loss after the property was delivered by the Government. The contract stated that:

[T]he Contractor, upon delivery to it of any Government-furnished property, assumes the risk of, and shall be responsible for, any loss thereof or damage thereto except for reasonable wear and tear \* \* \*

The contract also contained a "Disputes" clause, whereby the parties agreed that disputes arising under the contract should be settled by the Contracting Officer, with the right of appeal to the Secretary of Defense or his representative, i.e., the Armed Services Board of Contract Appeals.

Under contract No. 1 the Government was able to deliver to appellant only 3,956 quarts (989 one gallon cans) of phosphorescent paint. All but 240 quarts of the paint were put up by appellant in the specified quart cans, and were combined with the other required products to complete 3,716 kits, which were delivered to, and paid for by, the Government. After delivery of these kits appellant still had the remaining 240 quarts of Government-furnished phosphorescent paint on hand.

Negotiations between appellant and the Government during 1953 led to the execution of a second contract, No. 383s-97516, on January 7, 1954 (hereinafter referred to as contract No. 2). In this contract, appellant agreed to furnish

the Government 3,688 quarts of phosphorescent paint in one quart cans at a price of \$6.17 per quart. This was the exact amount of paint needed to complete contract No. 1 and was paint of the same type of phosphorescent paint called for by contract No. 1.

Contract No. 2, unlike the earlier contract, contained no express words in the schedule, specifications, or elsewhere, stating that "The Government shall furnish to the Contractor for use in connection with this contract, the material set forth below," followed by a description of any "material." Contract No. 2 did provide, however, as follows:

#### GOVERNMENT FURNISHED MATERIAL

The Phosphorescent Paint to be furnished under this contract shall be packaged and marked by the contractor so it may be used, without repacking or re-marking, as Component "A" of the Phosphorescent Paint Kits to be furnished by the same contractor under Contract N383s-77428 [No. 1].

Contract N383s-77428 [No. 1] provides that Component "A" (Phosphorescent Paint) shall be supplied by the Army as Government Furnished Material in the amount of 1,911 gallons, which amount is sufficient to produce 7,644 Phosphorescent Paint Kits covered by that contract; however, a quantity of 989 gallons only were available from Army stocks as Government Furnished Material. Procurement of 3,688 quarts (922 gals.) under Contract N383s-97516 [No. 2] was, therefore, necessary to effect completion of Contract N383s-77428 [No. 1].

Notwithstanding the nature of contract No. 2, the standard "Government-Furnished Property" clause, which allocated the risk of loss for such property, was also inserted. Since

contract No. 2 was a negotiated contract instead of an advertised one, the risk of loss by fire of the "Government-Furnished Property" was placed upon the Government, see 32 C. F. R. 13.502, but the insertion of this standard clause created the ambiguity which caused the present controversy.

Contract No. 2 also contained a "Disputes" clause, identical to the one in contract No. 1.

Appellant manufactured 1,118 quarts of phosphorescent paint pursuant to contract No. 2, and these 1,118 quarts, subsequently destroyed by fire, became the subject matter out of which the action before us arose. Of the 1,118 quarts, 318 were inspected and accepted by the Government at appellant's plant on April 6, 1954, and 800 were inspected and accepted by the Government at the plant on May 5, 1954. On each occasion, the Government inspector executed a "Material Inspection and Receiving Report," which recited among other things:

Government-furnished property.

Material to be used for Contract N383s-77428 [No. 1] by same Contractor for Component "A."

Copies of these reports were given to appellant. Subsequently, the Government paid appellant the purchase price for these 1,118 quarts.

After the Government had accepted the 1,118 quarts, they were kept in appellant's plant. This paint was not mingled with the 240 quarts which appellant had previously received as Government-furnished property under contract No. 1. Appellant did not increase the dollar limit on its inventory insurance to reflect the value of the 1,118 quarts manufactured under contract No. 2.

On May 31, 1954, appellant's plant was destroyed by fire. Included within the property lost were the 240 quarts



of paint which were admittedly Government-furnished under contract No. 1 and for which appellant acknowledged liability, and the 1,118 quarts which had been manufactured by the appellant under contract No. 2 and had been accepted by the Government. The appellant, by letter dated June 8, 1954, informed the Government of the loss of the two lots of paint. In the letter, the appellant stated: "The first 60 gal. was material which we had left from Government Furnished Material. The Balance was made for Aviation Supply Office under Contract N383s-77428 [No. 1]."<sup>1</sup>

The Government, in a letter dated August 4, 1954, informed appellant that a determination had been made that appellant was liable for both the 240 quarts and the 1,118 quarts of paint that had been destroyed, as both were Government-furnished property under contract No. 1, under which the risk of loss was to fall upon the contractor. On August 19, 1954, appellant replied. It admitted its liability for the 240 quarts, but requested that the Contracting Officer absolve it of liability for the 1,118 quarts because of the language in the "Government-Furnished Property" provisions of the second contract.

The Contracting Officer, on October 26, 1954, found appellant liable for the 1,118 quarts of paint. The Contracting Officer held: "Government Furnished Property clause in contract N383s-97516 [No. 2] is not applicable to and does not supersede the Government Furnished Property Clause of contract N383s-77428 [No. 1]." He found that the loss of the paint occurred while it was "in the Contractor's custody pending inclusion as Government Furnished Property in kits being furnished, under contract N383s-77428 [No. 1]," and thus appellant was liable for

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1. At the administrative hearing an official of the appellant testified that the contract number recited in this letter was an unintentional mistake, and that he meant to refer to contract No. 2.

replacement of such material under the provisions of contract No. 1.

Pursuant to the "Disputes" clauses of both contracts, appellant, on November 24, 1954, appealed to the Armed Services Board of Contract Appeals. After conducting a hearing, taking testimony, and receiving briefs from both parties, the Navy Contract Appeals Panel of the Armed Services Board of Contract Appeals, on June 24, 1957, filed its findings of fact, and handed down a decision in which it affirmed the ruling of the Contracting Officer. The Board decided "that at the time of their destruction on 31 May 1954 the 1,118 quarts of paint were at Appellant's risk under the provisions of Contract No. 1." The Board was of the view that "under the circumstances disclosed, Contract No. 2, even if deemed to be ambiguous in some respects, cannot be reasonably interpreted as providing that paint manufactured under Contract No. 2 would ever become subject to the Government-furnished property article of Contract No. 2," but rather that "Contract No. 2, in the light of the conduct of the parties, is to be reasonably construed as providing that paint manufactured under Contract No. 2 shall upon delivery become Government-furnished property under Contract No. 1 and subject, therefore, to the Government-furnished property article of Contract No. 1."

Appellant also attempted, by an amendment to its complaint filed after the hearing, to present to the Board of Contract Appeals a claim for an allowance for the Government's alleged delay in furnishing paint under contract No. 1. It invoked the clause of the contract relating to an equitable adjustment, if requested by the contractor, in price or date of performance for Government delays in furnishing material. The Board, however, refused to consider this issue, as appellant had failed to raise it either before the Contracting Officer or initially before the Board,

and "the case was tried by the parties solely on the question of where the risk lies."

Thereafter, on February 25, 1958, appellant brought the present action in the district court, seeking damages, first, in the amount of \$6,898.06 for the Government's alleged failure to deliver Government-furnished paint under contract No. 1, paint which appellant was required to replace after the fire by purchase in the open market, and second, additional damages in the amount of \$3,000.00, claimed to have resulted from the Government's alleged delay in delivering Government-furnished paint under contract No. 1. The complaint alleged that the decision of the Armed Services Board of Contract Appeals, adverse to appellant, was "not based on substantial evidence" and "contained errors of law." Later, however, a question arose as to the scope of review in the district court under the Wunderlich Act, 68 Stat. 81 (1954), 41 U. S. C. §§321-22 (1958),<sup>2</sup> for the Government, on October 7, 1960, moved for an order precluding the taking of testimony by the district court and directing that the scope of review be limited to a con-

2 The Wunderlich Act provides as follows:

§1. Limitation on pleading contract-provisions relating to finality; standards of review.

No provision of any contract entered into by the United States, relating to the finality or conclusiveness of any decision of the head of any department or agency or his duly authorized representative or board in a dispute involving a question arising under such contract, shall be pleaded in any suit now filed or to be filed as limiting judicial review of any such decision to cases where fraud by such official or his said representative or board is alleged: *Provided, however,* That any such decision shall be final and conclusive unless the same is fraudulent (sic) or capricious or arbitrary or so grossly erroneous as necessarily to imply bad faith, or is not supported by substantial evidence.

§2. Contract-provisions making decisions final on questions of law.

No Government contract shall contain a provision making final on a question of law the decision of any administrative official, representative, or board.

sideration of whether the decision of the Board was supported by substantial evidence and was sound in law. The court, in a memorandum opinion dated October 24, 1960, granted the Government's motion and held that the issues before it would be determined solely on the record made before the Board of Contract Appeals.

In its answer the Government had demanded judgment dismissing the complaint. By an order dated July 17, 1961, the district court granted this demand and entered judgment in favor of the Government. In its opinion, reported at 199 F. Supp. 285, the court divided the controversy into two issues. The first related to the proper interpretation of the contract provisions. This was treated as solely a question of law. The district court held as to this issue that the second contract did not supersede or modify the first contract, but merely implemented it; and that the "Government-Furnished Property" provision of contract No. 2 was not intended to cover the paint to be manufactured by appellant under that contract.

The second issue before the district court, "whether the government accepted the paint and supplied it to the plaintiff for performance of the first contract," was described by the court as a "factual issue." As to this issue the court found that the Government, by leaving with appellant the paint which appellant had manufactured under contract No. 2 and which the Government had accepted and paid for, furnished it to appellant for performance of contract No. 1. Therefore, the district court agreed with the Board that, under the risk-of-loss provision of Contract No. 1, appellant was responsible for the loss of the 1,118 quarts of paint. Appellant then appealed to this court.

There are two questions before us for decision: (1) whether the district court was correct in deciding the issues

before it solely upon the record made at the administrative hearing or whether it should have taken additional testimony in a trial *de novo*, and (2) if the district court was correct in limiting the taking of evidence, whether it was correct in its interpretation of the contract provisions.

The court below was right, at least initially, in considering the interpretation of the contract provisions a question of law for its independent decision under the Wunderlich Act §2, 68 Stat. 81 (1954), 41 U. S. C. §322 (1958). See *Kayfield Constr. Corp. v. United States*, 278 F. 2d 217 (2d Cir. 1960); H. Rep. No. 1380, 83d Cong., 2d Sess. 5 (1954). But see *United States v. McKinnon*, 289 F. 2d 908 (9th Cir.) (*per curiam*). On the other hand, when it is necessary to look beyond the four corners of a document to resolve the intention of the parties, the question of the meaning of the contract has often been considered a question of fact. *West v. Smith*, 101 U. S. 263, 270 (1879); 4 Williston, Contracts §616 at 660 (3d ed.).

At first blush it may appear paradoxical for appellant to insist that this issue is a "question of law" within the Wunderlich Act, and also insist that it be allowed to present additional evidence on the point in a trial *de novo* before the district court. We realize, however, that the terms "question of fact" and "question of law," may have various meanings in various contexts. Therefore, we can imagine situations in which appellant's argument would be internally consistent. Cf. *Kayfield Constr. Corp. v. United States*, *supra*. We must decide whether we are presented with one of those situations.

The law is quite unsettled whether a district court reviewing the administrative ruling of one of the contract disputes boards should grant a trial *de novo* and take testimony, or whether it should limit its review to the record made before the administrative board. The Court of Claims has generally held that a trial *de novo* should be granted.

*Volentine and Littleton v. United States*, 145 F. Supp. 952 (Ct. Cl. 1956). *Fehlhaber Corp. v. United States*, 151 F. Supp. 817 (Ct. Cl.), *cert. denied*, 355 U. S. 877 (1957). The district courts and the courts of appeals, on the other hand, have tended to restrict court review to a review of the administrative record. *United States v. McKinnon*, *supra*; *Lowell O. West Lumber Sales v. United States*, 270 F. 2d 12 (9th Cir. 1959); *Mann Chemical Labs., Inc. v. United States*, 174 F. Supp. 563 (D. Mass. 1958); *L. W. Foster Sportswear, Inc.*, 145 F. Supp. 148 (E. D. Pa. 1956); *United States Nat'l Bank v. United States*, 178 F. Supp. 910 (D. Ore. 1959). *But see Blake Constr. Co. v. United States*, *supra*. Moreover, the legislative history of the Wunderlich Act is inconclusive. See *Volentine and Littleton v. United States*, *supra* at 955-57 (Littleton, J., concurring).

We agree with the statement by the Court of Appeals for the District of Columbia Circuit in *Blake Constr. Co. v. United States*, *supra* at 397, that "a practical approach to the allocation of functions is the guideline" we should follow, but in so resolving the problem before us we reach the opposite result from the one that court arrived at in *Blake*. Here, the issue on which appellant wants the district court to take additional testimony was squarely presented to the Contracting Officer and to the Board of Contract Appeals. There is nothing to indicate that appellant was precluded from introducing before the administrative tribunal whatever evidence it wished to present, and appellant does not claim to have any evidence not known of then and discovered afterwards. Moreover, appellant has failed to point out what additional testimony, not presented to the Board, it desires to present to the district court, and it concedes in one part of its brief that the basic facts are not in dispute.

Appellant should have presented all its evidence to the administrative board. If it had done so, the evidence would



have been available both to the administrative tribunal and to the district court. Since the parties had proceeded through a full hearing before the Board of Contract Appeals, the district court was quite correct, under the circumstances here presented, in limiting its review to the record made before the administrative board. Cf. *United States v. Hamden Co-op. Creamery Co.*, 297 F. 2d 130, 133 (2d Cir. 1961).

Thus we turn to the remaining question before us, whether, on the evidence before it, the court below was correct in its interpretation of the two contracts. We hold that the district court's interpretation was correct. The two paragraphs of contract No. 2 quoted earlier in this opinion make it abundantly clear that it was the Government's intention in entering into that contract to obtain the quantity of phosphorescent paint it needed to complete its obligation under contract No. 1.

Appellant concedes that the Government accepted and paid for the 1,118 quarts of paint that were destroyed. Upon this acceptance these quarts became Government-furnished paint under contract No. 1, not under contract No. 2. A reasonable construction of the two contracts is that contract No. 2 implemented contract No. 1, and that contract No. 1 remained in effect throughout the continuing relationship between the parties. Since contract No. 1 placed the risk of loss upon appellant for "Government-Furnished Property" under that contract, it follows that appellant must bear the loss.

Appellant relies heavily upon the "Government-Furnished Property" provisions of contract No. 2, which place the risk of loss on the Government for property to which those provisions apply. These were standard provisions found in all negotiated contracts of this type. It would appear that the parties included these standard provisions without considering exactly how the provisions would affect the

relationship between them. It would be an awkward interpretation to infer that the present parties by the inclusion of this standard clause intended that the paint to be manufactured under contract No. 2 *by appellant* was to be *Government-furnished* property under that contract.

Appellant's belated contention as to delay by the Government is also without merit.

The district court properly dismissed the complaint.

Judgment affirmed.